Nokia Customer Care
NHL-12 Series Transceivers

3 - Service Software Instructions

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Table of Contents

Page No

Quick Guide for Phoenix Service SW Installation 5
Phoenix installation steps in brief 5

Phoenix Service SW 6
Before installation 6
Startup 6
Installing dongle driver and checking version 8
Installing Phoenix 9
Updating Phoenix 11
Uninstalling Phoenix 12

Data Package for Phoenix (Product Specific) 15
Before installation 15
Installing Phoenix data package (product specific) 15
Uninstalling data package 18
Managing connections 19

Updating Flash Support Files for FPS-8* and FLS-4S* 23
Before installation 23
Installing the flash support files 23
Updating FPS-8* flash prommer SW 26

Activating and Deactivating FPS-8 29
Activating FPS-8 29
Deactivating FPS-8 31

JBV-1 Docking Station Software 32
Before installation 32
Installing software needed for the JBV-1 SW update 32
Updating JBV-1 docking station software 36

Receiver Tuning: Quick Guide for Tuning with Phoenix 37
General remarks 37
Service tool concept for RF tuning operations 38
Autotuning 39
Set loss 40
Environment 40
Protection 41
Receiver manual tuning 42
Rx Channel Select Filter Calibration 42
Rx Calibration 42
Rx Band Filter Response Compensation 46
Rx Am Suppression 51
Transmitter manual tuning 55

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Tx Power Level Tuning 55
Tx I/Q Tuning 63

Service Tool Concept for Baseband Tuning Operations 69

Baseband Tuning Operations 71
Energy management calibration 71

Phoenix Self Tests 73

Flashing Setup Instructions 75
POS (Point of Sale) flash concept 75
JBV-1 flash concept 76
Module jig concept 78
Service concept for calibrations 79
Connecting SA-5 and XRS-11 80
Parallel flash concept 82
Bluetooth testing with JBT-9 83
Flash fail situations 84
0xC602 84
0xC686 85
0xC684 86
0xC101 or 0xC102 or 0xC103 86

Reprogramming NHL-12 89
Connecting cables 89
Backing up settings 89
Updating software 90
Formatting user area 91
Restoring settings 91
Restoring settings from the MMC card 91
Restoring settings with Phoenix 91

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1. §Quick Guide for Phoenix Service SW Installation

Phoenix installation steps in brief

These are the basic steps to install the Phoenix:

- Install the Phoenix service SW.
- Install the data package for Phoenix (product specific data and flash update package).
- Manage connection settings (depends on the tools you are using).
- Update FPS-8 SW (if you use FPS-8).
- Activate FPS-8.
- Update JBV-1 docking station SW (only when needed).

The flash update files are delivered with then Phoenix data package so unless you want to use certain version of this package, separate installation package is not needed. If you want to use it, it should be installed after connection management, before FPS-8 update.

Please refer to Service Manual and Technical Bulletins for more information concerning phone model specific service tools and equipment setup.

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2. Phoenix Service SW

Before installation

Administrator rights may be required to be able to install Phoenix depending on the operating system.

- Check that a dongle is attached to the parallel port of your computer.
- Download the latest available version of the installation package (for example, ***phoenix_service_sw_a7_2004_9_2_3.exe***) to your computer (e.g. C:\TEMP).
- Close all other programs.
- Run the application file (e.g. ***phoenix_service_sw_a7_2004_9_2_3.exe)*** and follow instructions on the screen.
- If the dongle driver is installed or updated, you need to reboot your PC before the installation can continue.
- If uninstalling or rebooting is needed at any point, you will be prompted by the Install Shield program.

If at any point during installation you get this message:

"*Dongle is not found and installation cannot continue*".

Possible reasons may be defective or too old PKD-1 dongle (five digit serial number dongle when used with FPS-8 prommer) or that the FLS-4S POS flash dongle is defective or power to it is not supplied by external charger.

Check the COM /parallel ports used first! After correcting the problem Installation can be re-started.

Dongle not found
Insert Nokia dongle and click Retry to re-detect the dongle or click Cancel to exit the installation.
Retry
Cancel

Startup

1. To start installation, run the application file (e.g. ***phoenix_service_sw_a7_2004_9_2_3.exe***).

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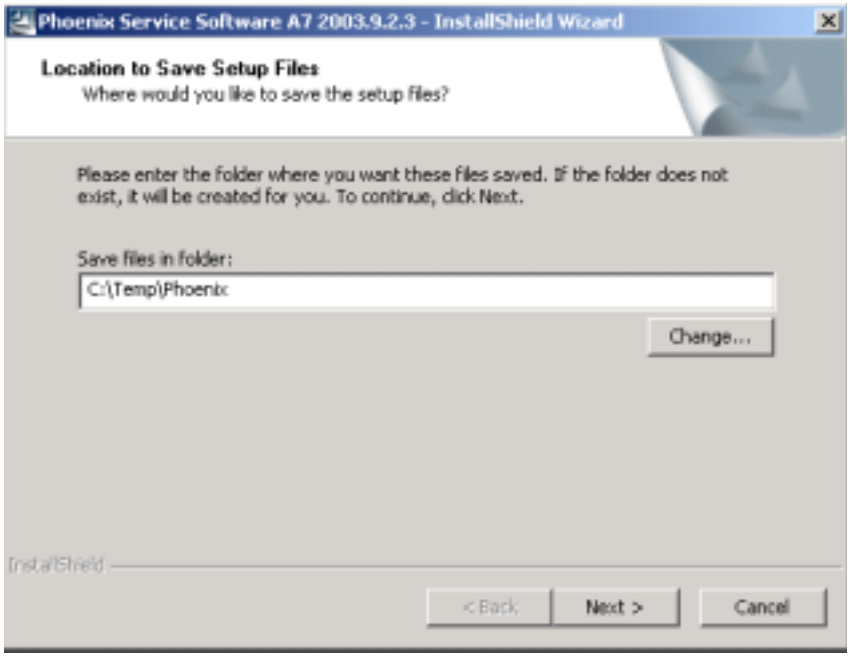
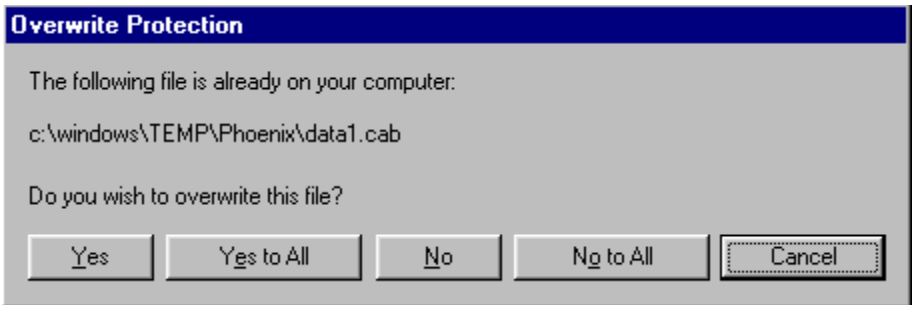
2. To extract the files needed for installation, click “Next”.


Phoenix Service Software A7 2003.9.2.3 - InstallShield Wizard
Location to Save Setup Files
Where would you like to save the setup files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
C:\Temp\Phoenix
Change...
InstallShield
< Back
Next >
Cancel

If the setup files are already extracted (left in the file system from previous installation), the following dialog box appears.

3. To overwrite the existing setup files, click "Yes to All".



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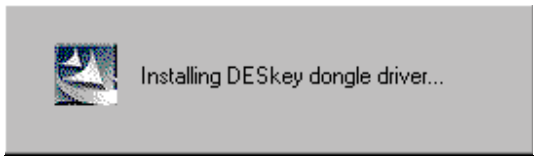
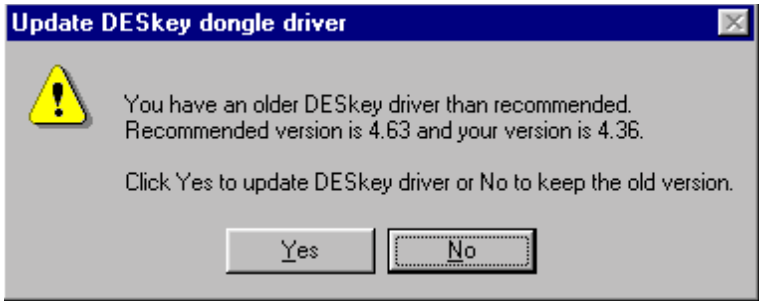
Installing dongle driver and checking version

If there is no previously installed dongle driver, a new installation takes place.

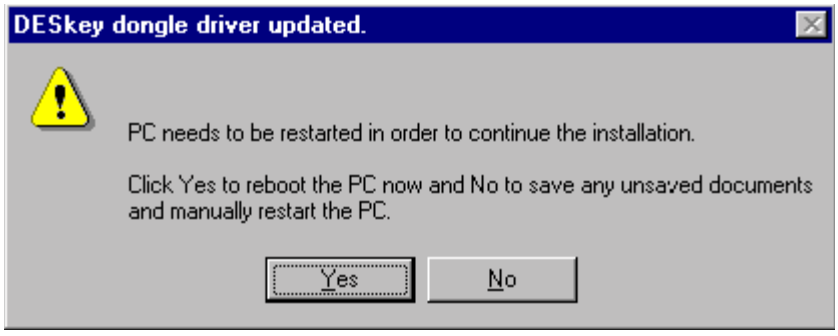


If the dongle driver is installed and it is older than the latest supported version, the latest version will be installed when you click “Yes”. The latest version is always included in the latest Phoenix installation package.


Update DESkey dongle driver
You have an older DESkey driver than recommended.
Recommended version is 4.63 and your version is 4.36.
Click Yes to update DESkey driver or No to keep the old version.
Yes
No

PC needs to be rebooted before installation can continue. To reboot the PC, click "Yes".

Setup is restarted automatically after reboot.


DESkey dongle driver updated.
PC needs to be restarted in order to continue the installation.
Click Yes to reboot the PC now and No to save any unsaved documents and manually restart the PC.
Yes
No

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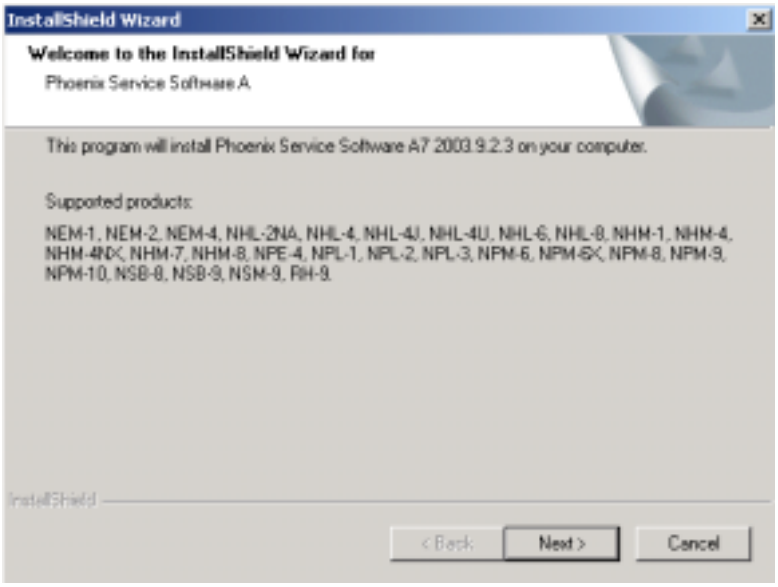
Installing Phoenix

After dongle driver installation / update (if needed) installation continues from this step.

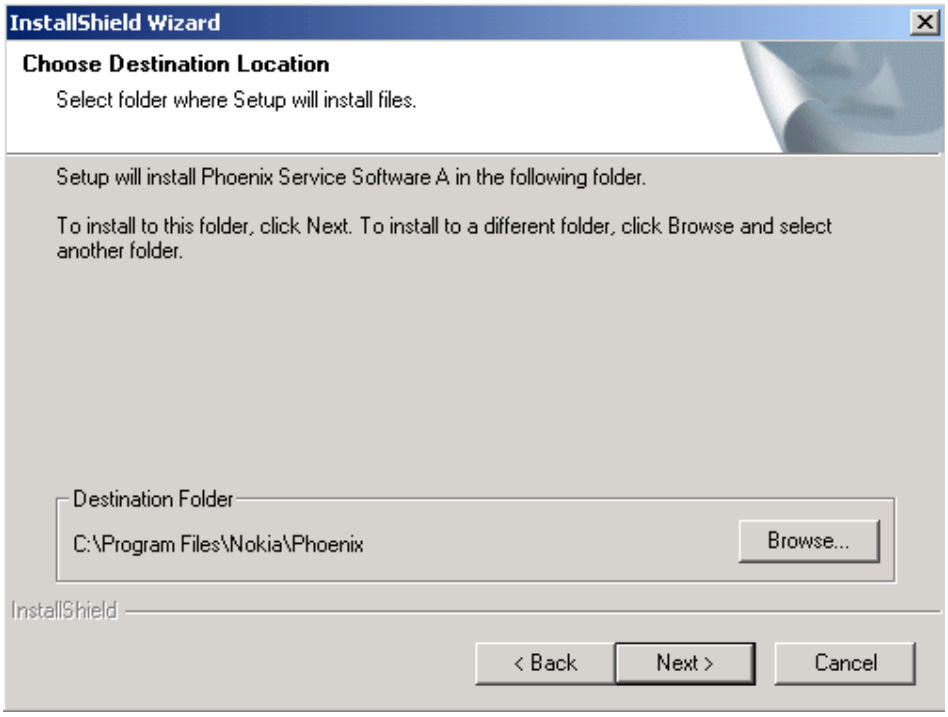
1. In the Welcome dialog box, click "Next" to continue.


InstallShield Wizard
Welcome to the InstallShield Wizard for
Phoenix Service Software A
This program will install Phoenix Service Software A7 2003.9.2.3 on your computer.
Supported products:
NEM-1, NEM-2, NEM-4, NHL-2NA, NHL-4, NHL-4U, NHL-4U, NHL-6, NHL-8, NHM-1, NHM-4, NHM-4NX, NHM-7, NHM-8, NPE-4, NPL-1, NPL-2, NPL-3, NPM-6, NPM-6X, NPM-8, NPM-9, NPM-10, NSB-8, NSB-9, NSM-9, RH-9
InstallShield
< Back
Next >
Cancel

2. Choose the destination folder. It is recommended to use the default folder: ***C:\ProgramFiles\Nokia\Phoenix***.

To choose another location, click “Browse” (not recommended).

3. To continue, click “Next”.


InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install Phoenix Service Software A in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Nokia\Phoenix
Browse...
InstallShield
< Back
Next >
Cancel

Setup copies the components, please wait.

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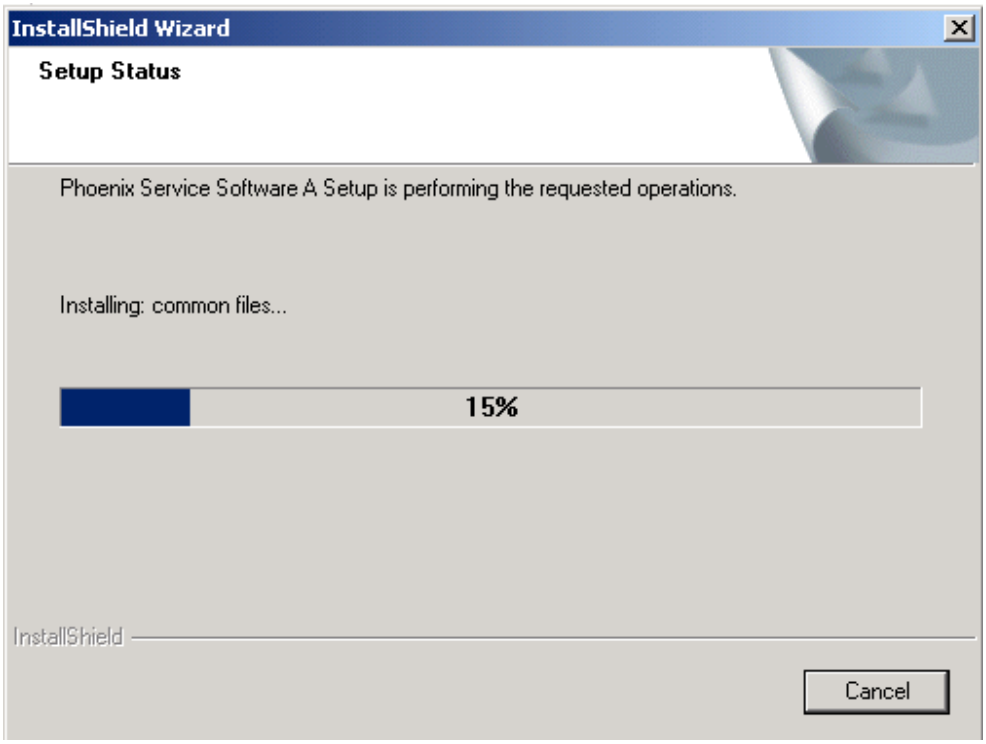
The progress of the setup is shown. Please wait.



If restarting of your computer is needed**,** the Install Shield Wizard notifies you about it.

4. To reboot the PC immediately, select "Yes...". To reboot the PC manually, check "No...".

Note that Phoenix does not work, if components are not registered.

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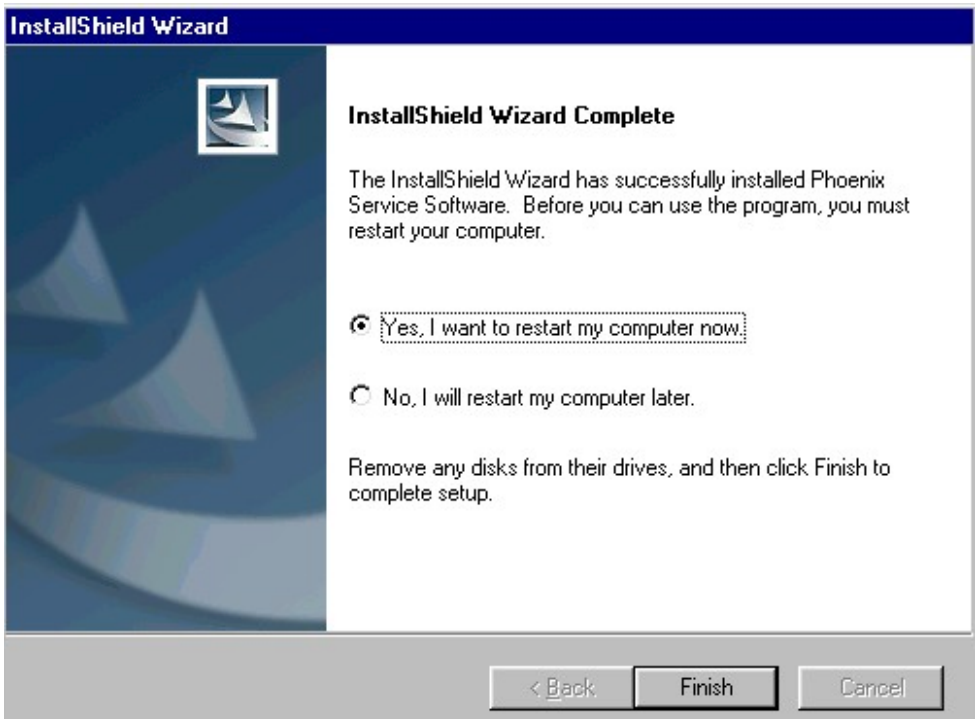
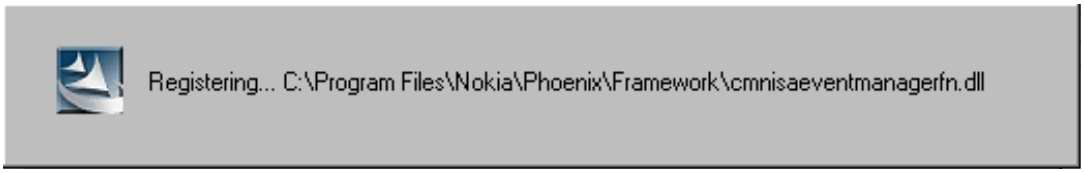
5. To continue, click "Finish".


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Phoenix Service Software. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

After the reboot, components are registered and Phoenix is ready for use.
If reboot is not needed, components are registered after copying them.



6. If restarting of your computer is not needed, Click "Finish" to exit the setup.

Phoenix is now ready for use.

Now the installation of Phoenix Service SW is ready and it can be used after:

- Installing phone model specific phone data package for Phoenix.
- Configuring the connections.
- Updating the flash update package files used with FPS-8* and FLS-4S* tools.

Updating Phoenix

If you already have the Phoenix service SW installed on your computer, sooner or later there will be need for an update.

Please note that very often the Phoenix service SW and the phone specific data package for Phoenix come in pairs, meaning that certain version of Phoenix can only be used with certain version of data package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

To update Phoenix, you need to take exactly the same steps as when installing it for the first time:

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1. Download the installation package to your computer hard disk.
2. Close all other programs.
3. Run the application file (e.g. ***phoenix_service_sw_a7_2004_9_2_3.exe***).

Dongle driver version is checked and if need be, updated.

After reboot installation starts automatically.

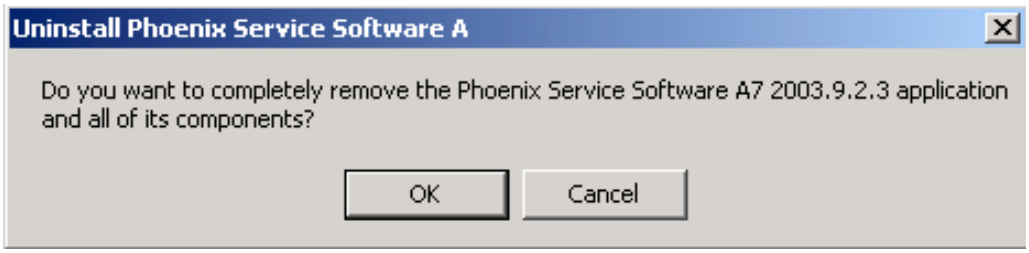
Newer version of Phoenix is installed.

When you update the Phoenix from old to new version (e.g. update from ***2004_9_2_3*** to ***2004_9_2_5***), the update will take place automatically without uninstallation.

If you try update the Phoenix with the same version that you already have, you are asked if you want to uninstall the version of Phoenix you have on your PC.

To uninstall Phoenix, click “OK”.

If you do not want to uninstall, click “Cancel”.


Uninstall Phoenix Service Software A
Do you want to completely remove the Phoenix Service Software A7 2003.9.2.3 application and all of its components?
OK
Cancel

If you try to install an older version (e.g. downgrade from 2004_9_2_3 to 2004_9_1_2) installation will be interrupted.

Note! Always follow the instructions on the screen.

Uninstalling Phoenix

To uninstall Phoenix manually:

1. From the Windows Control Panel, choose Add / Remove Programs.
2. Choose “Phoenix Service Software” and click "Add/Remove".

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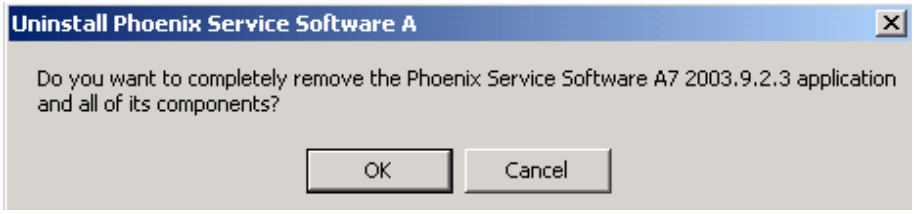
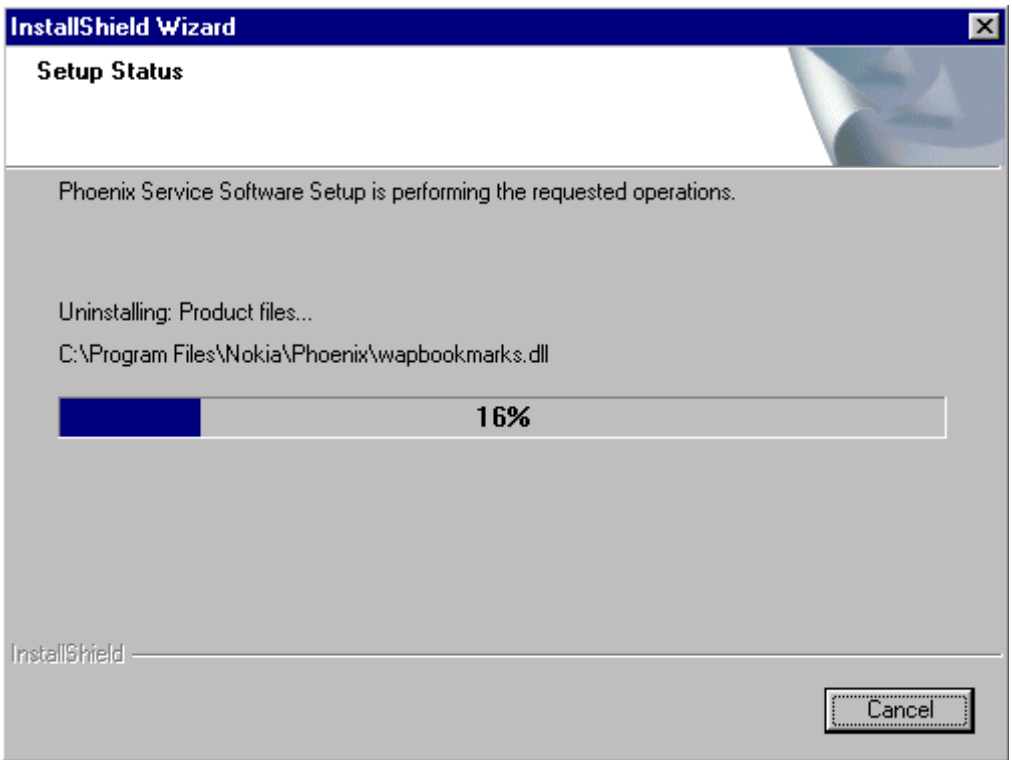
3. To uninstall, click “OK”


Uninstall Phoenix Service Software A
Do you want to completely remove the Phoenix Service Software A7 2003.9.2.3 application and all of its components?
OK
Cancel

The progress of the uninstallation is shown.



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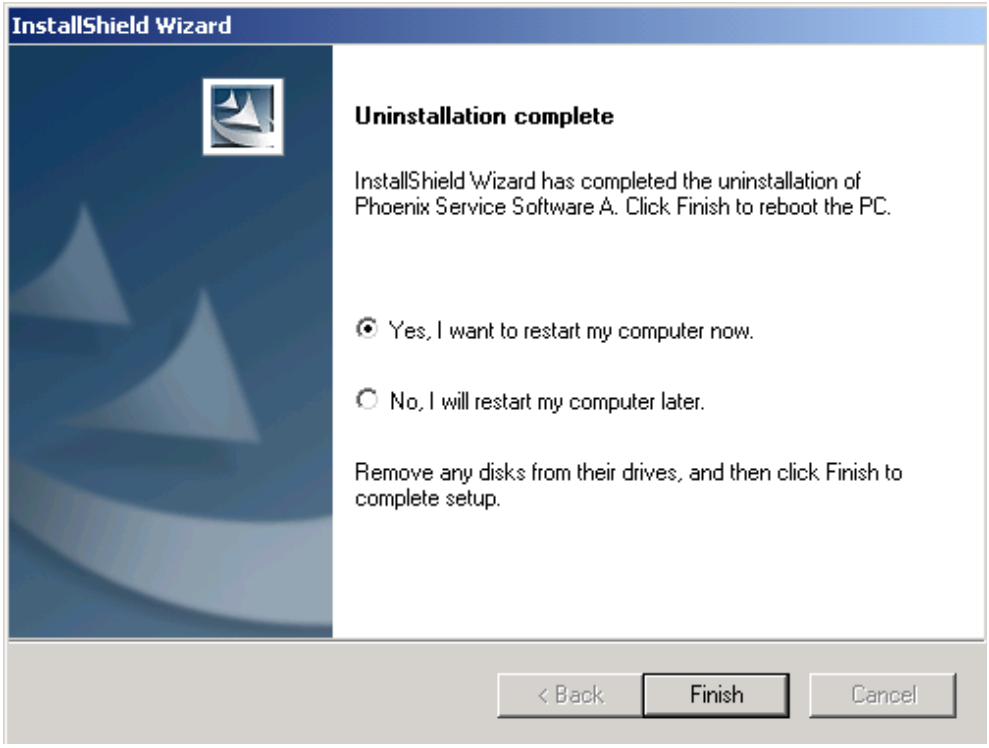
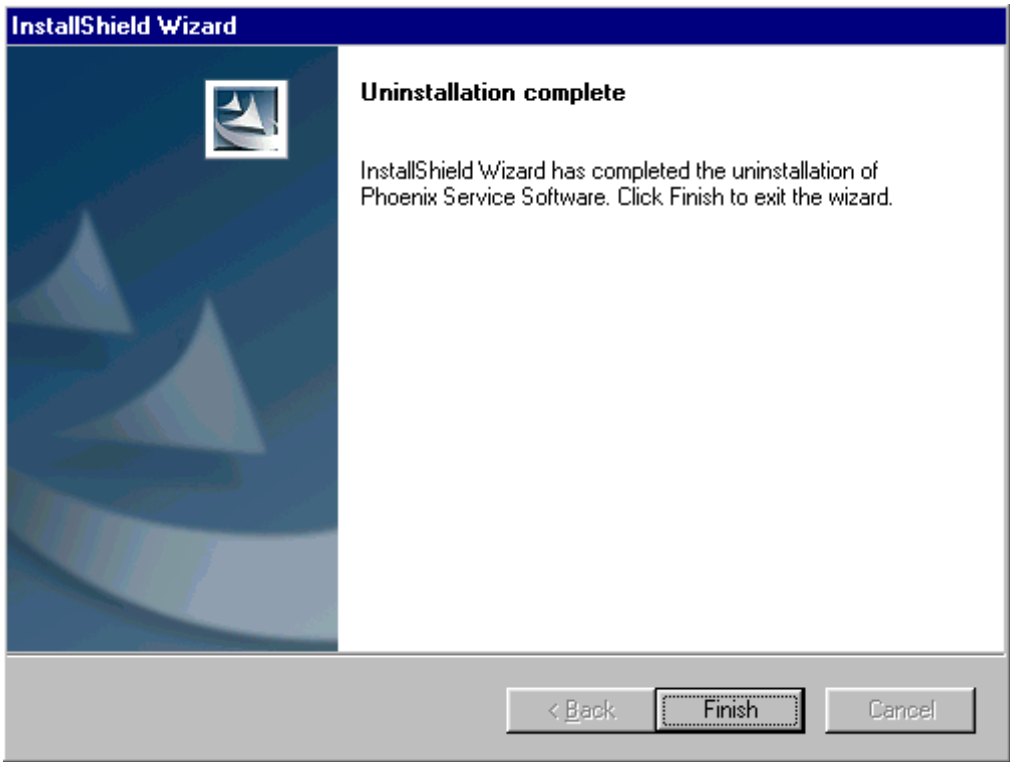
You may have to reboot the PC after uninstallation.


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of Phoenix Service Software A. Click Finish to reboot the PC.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

If restarting is not needed, the following dialog box appears:


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of Phoenix Service Software. Click Finish to exit the wizard.
< Back
Finish
Cancel

Note! If you have different product packages installed, components are uninstalled only if they are not included in other product packages.

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3. Data Package for Phoenix (Product Specific)

Before installation

Product data package contains all product specific data to make the Phoenix service software and tools usable with a certain phone model.

It also includes the latest version of flash update package for FLS-4S* and FPS-8*

- Check that the dongle is attached to the parallel port of your computer.
- Install Phoenix service SW.
- Download the installation package (e.g. ***nhl-12_dp_v1.0_sw3.02.exe***) to your computer (e.g. C:\TEMP).
- Close all other programs.
- Run the application file (e.g.***nhl-12_dp_v1.0_sw3.02.exe***) and follow instructions on the screen.

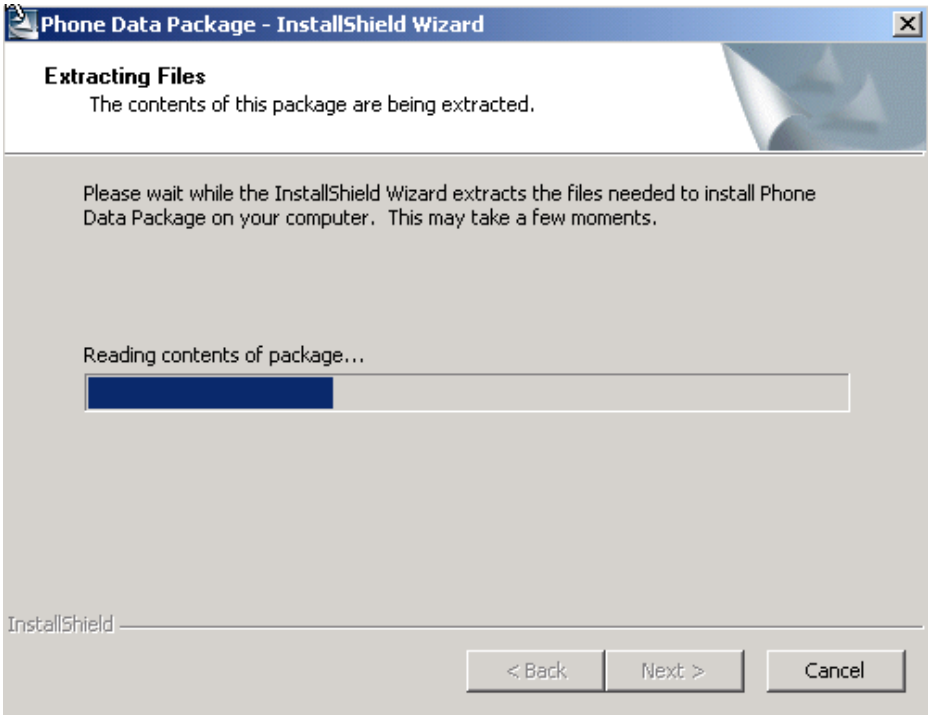
If you already have the Phoenix service SW installed on your computer, sooner or later there will be need to update it when new versions are released.

Please note that very often the Phoenix service SW and the phone specific data package for Phoenix come in pairs, meaning that certain version of Phoenix can only be used with certain version of a data package. Always use the latest available versions of both. Instructions can be found in phone model specific Technical Bulletins.

Installing Phoenix data package (product specific)

To start installation:

1. Run the application file (e.g. ***nhl-12_dp_v1.0_sw3.02.exe***).
2. To extract the files needed for installation, click “Next”. Please wait.


Phone Data Package - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Phone Data Package on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

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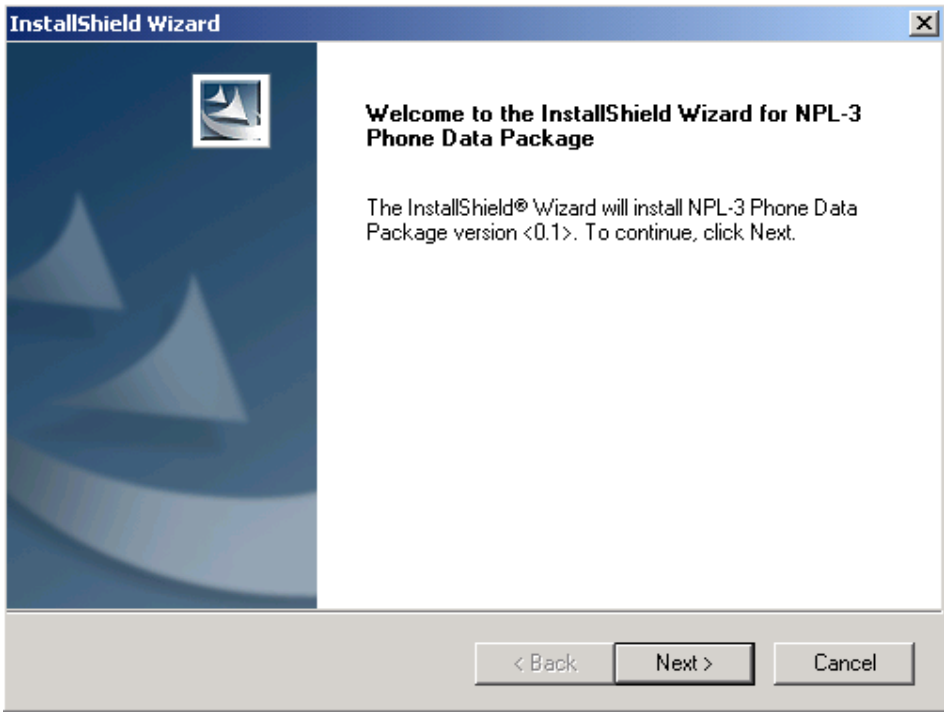
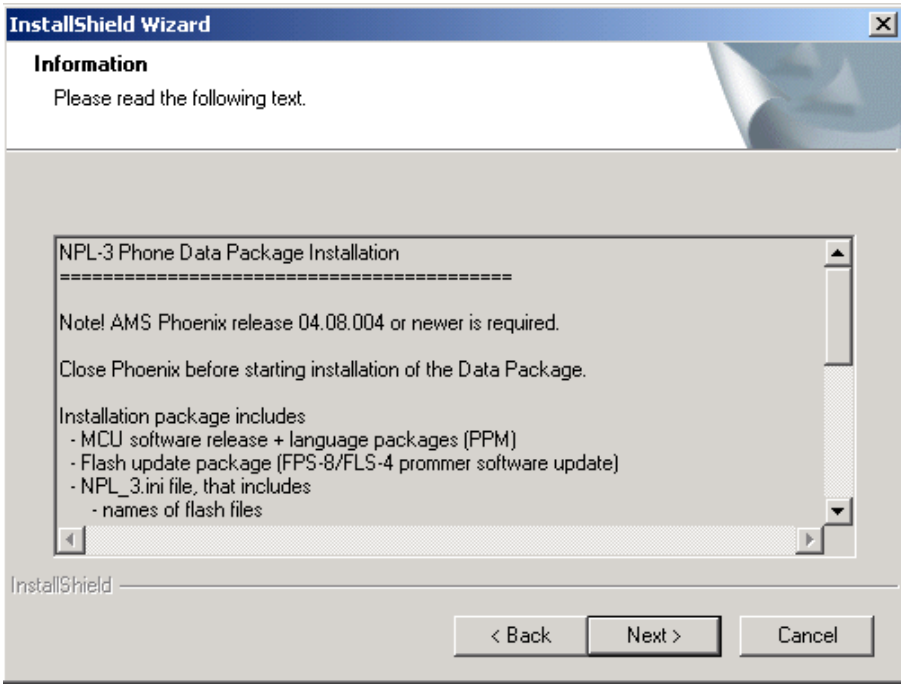
3. To continue, click “Next”.


InstallShield Wizard
Welcome to the InstallShield Wizard for NPL-3 Phone Data Package
The InstallShield® Wizard will install NPL-3 Phone Data Package version <0.1>. To continue, click Next.
< Back
Next >
Cancel

In the following view you can see the contents of the data package. **Read the text carefully**.

There should be information about the Phoenix version needed with this data package.

4. Click “Next”.


InstallShield Wizard
Information
Please read the following text.
NPL-3 Phone Data Package Installation
==========
Note! AMS Phoenix release 04.08.004 or newer is required.
Close Phoenix before starting installation of the Data Package.
Installation package includes
- MCU software release + language packages (PPM)
- Flash update package (FPS-8/FLS-4 prommer software update)
- NPL_3.ini file, that includes
- names of flash files
InstallShield
< Back
Next >
Cancel

5. Confirm location and click “Next” to continue.

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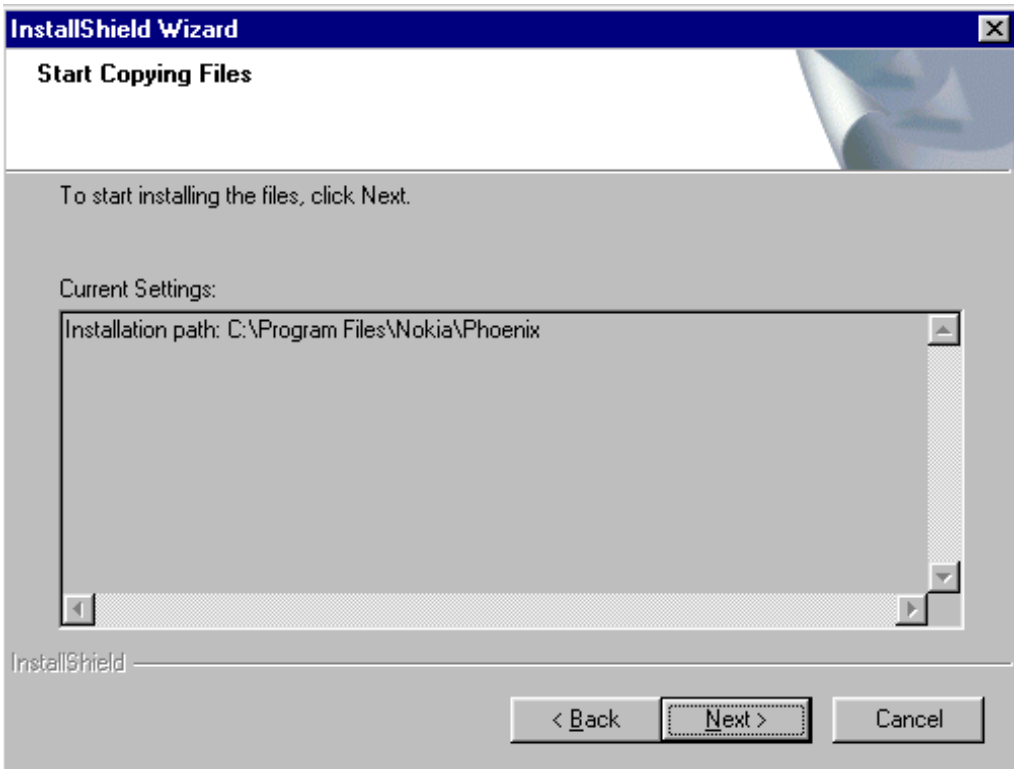
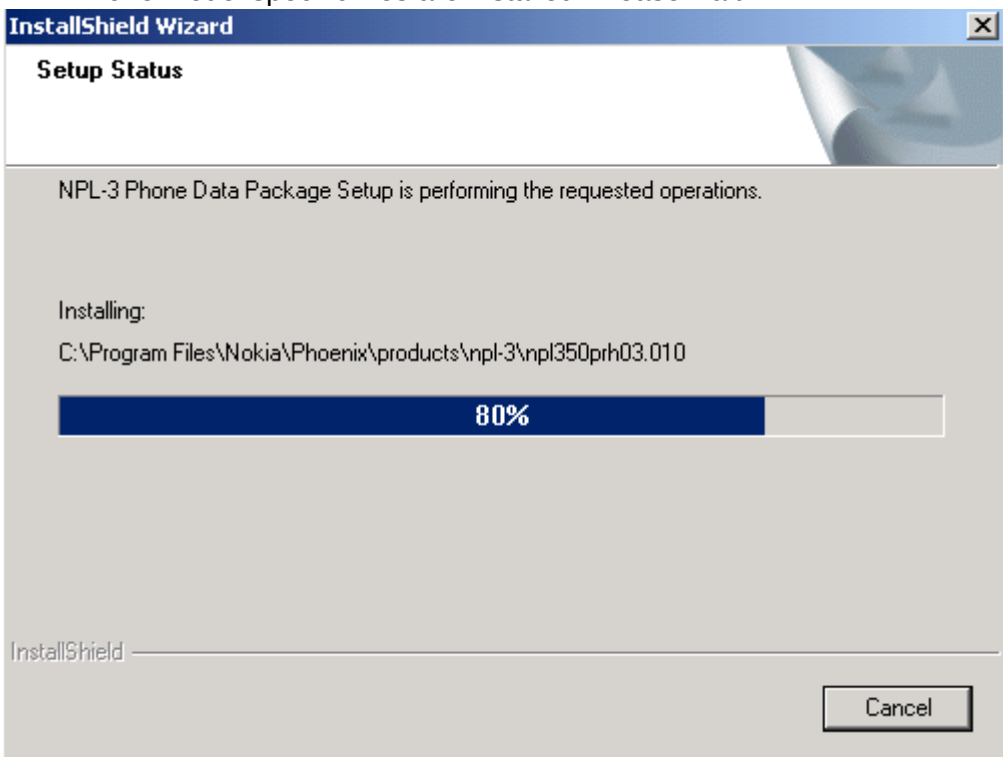
Install Shield checks where the Phoenix application is installed and the directory is shown.

6. To continue, click “Next”.



Phone model specific files are installed. Please wait.



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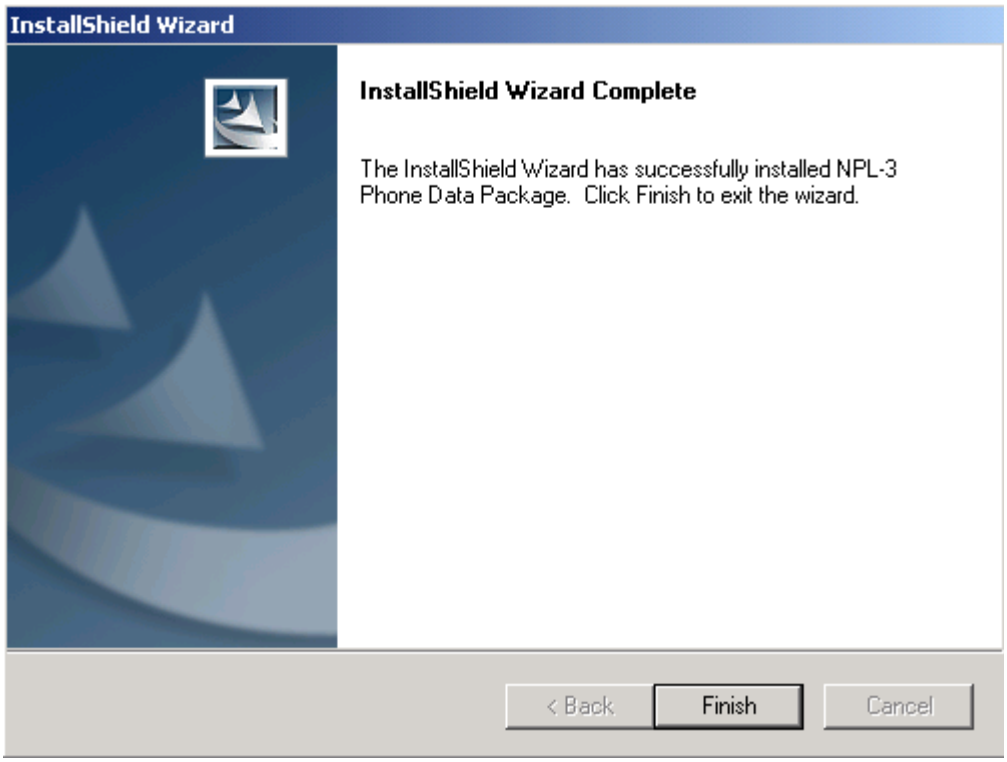
7. To complete installation, click “Finish”.


InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed NPL-3 Phone Data Package. Click Finish to exit the wizard.
< Back
Finish
Cancel

You now have all phone model specific files installed in your Phoenix service SW.

Uninstalling data package

To uninstall the data package manually:

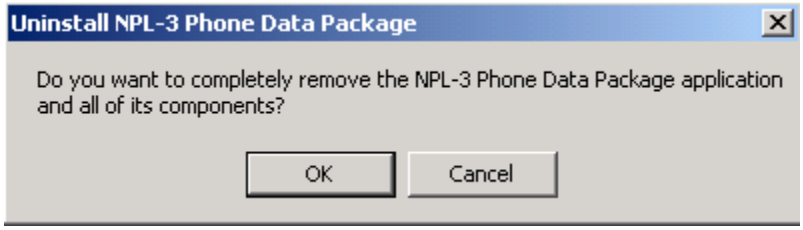
1. From the Windows Control Panel, choose Add / Remove Programs/ “NHL-12 Phone Data Package”.

If you try to install the same version of Phoenix data package that you already have, you are asked if you want to uninstall it.

2. To uninstall, click “OK”.

If you do not want to uninstall, click “Cancel”.

Older versions of data packages need not be uninstalled.


Uninstall NPL-3 Phone Data Package
Do you want to completely remove the NPL-3 Phone Data Package application and all of its components?
OK
Cancel

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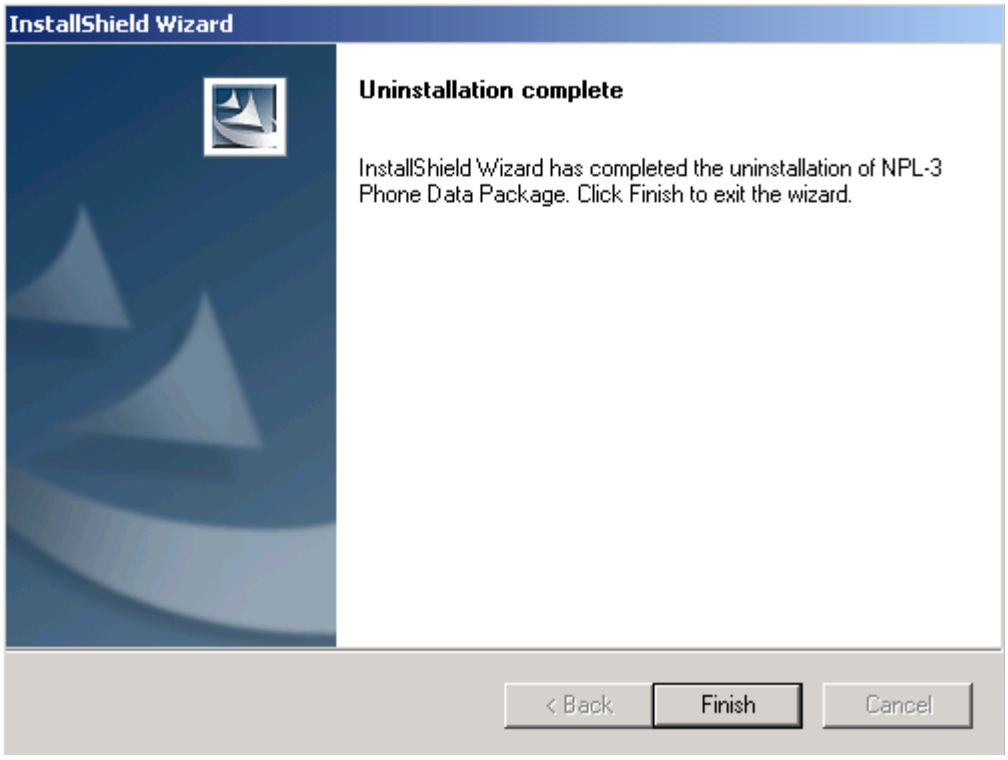
3. Once the previously installed data package is uninstalled, click “Finish”.


InstallShield Wizard
Uninstallation complete
InstallShield Wizard has completed the uninstallation of NPL-3 Phone Data Package. Click Finish to exit the wizard.
< Back
Finish
Cancel

4. To continue installation from the beginning, run the application file (e.g. ***nhl-12_dp_v1.0_sw3.02.exe***).

Managing connections

To manage connections:

1. Start Phoenix service SW and login.

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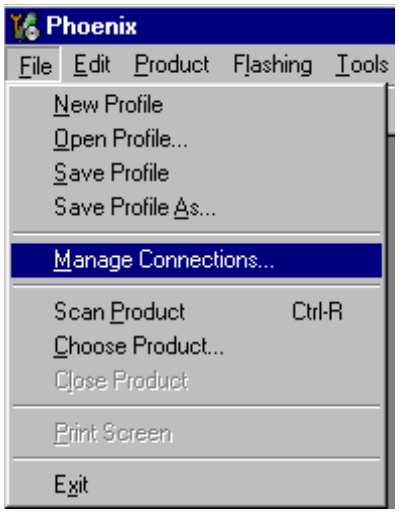
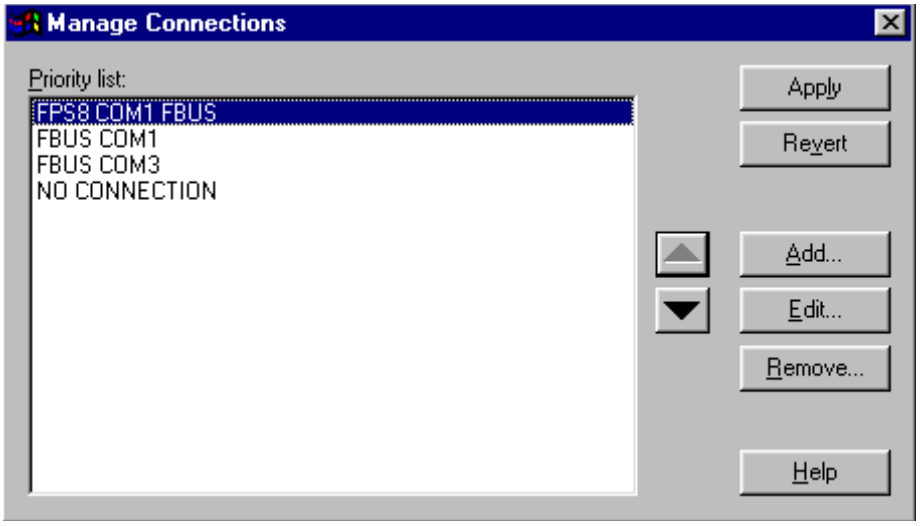
2. From the “File” menu, select “Manage Connections”



Existing connections can be selected, edited, deleted and new ones created by using this dialog.

You can create a connection either manually or by using a Connection Wizard.

3. To add new connection, click “Add” and select if you want to create it manually or by using the Wizard.



4. To continue, click “Next”.

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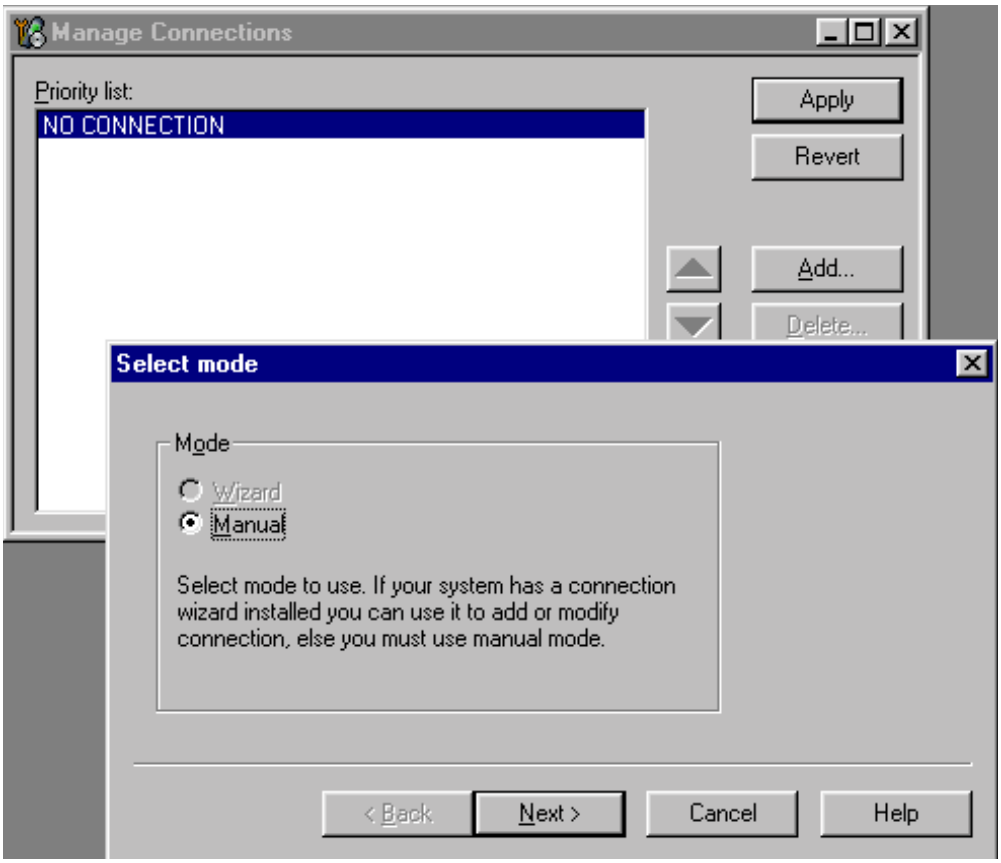
5. In the next dialog box you are asked to select some settings for the connection



Manual settings:

A) For **FLS-4S POS Flash Device** choose the following connection settings:

- **Media:** FBUS
- **COM Port:** Virtual COM Port used by FLS-4S. **Please check this always!**

(To check the settings, please go to Windows / Control Panel / FLS Virtual Port / Configuration)

B) For **FPS-8 Flash Prommer** choose the following connection settings:

- **Media:** FPS-8
- **Port Num:** COM Port where FPS-8 is connected
- **COMBOX_DEF_MEDIA:** FBUS

6. To complete, click “Finish”.

If you use the Wizard, connect the tools and a phone to your PC and the wizard automatically tries to configure the correct connection.

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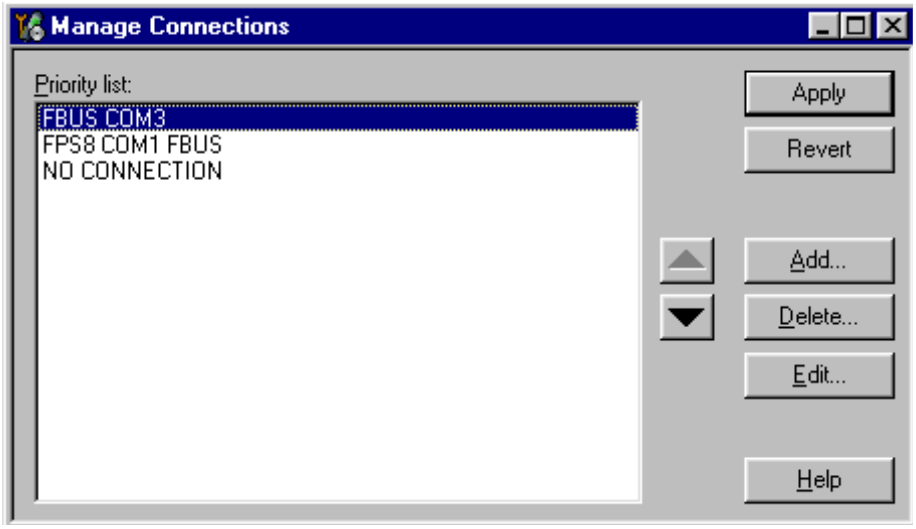
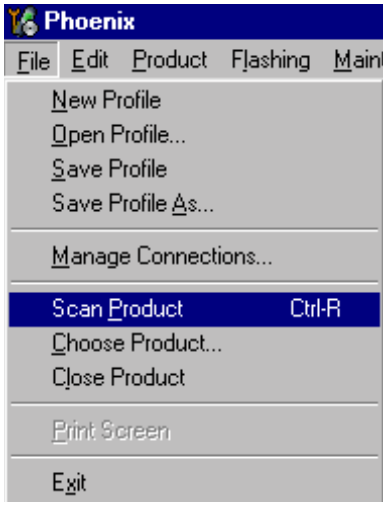
7. To activate the connection you want to use, click it and use up/down arrows to move it on top of the list. Click “Apply”.

The connection is now selected and can be used after closing the “Manage Connections” window.

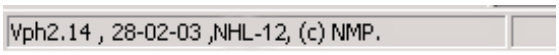


Selected connection is shown in the right-hand bottom corner of the screen.

8. To use the selected connection, connect the phone to Phoenix with correct service tools. Make sure that it is switched on and choose “Scan Product” from the File menu.



When the product is found, Phoenix loads product support. When everything is ready, the name of the loaded product support module and its version are shown at the bottom of the screen.



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4. Updating Flash Support Files for FPS-8* and FLS-4S*

Before installation

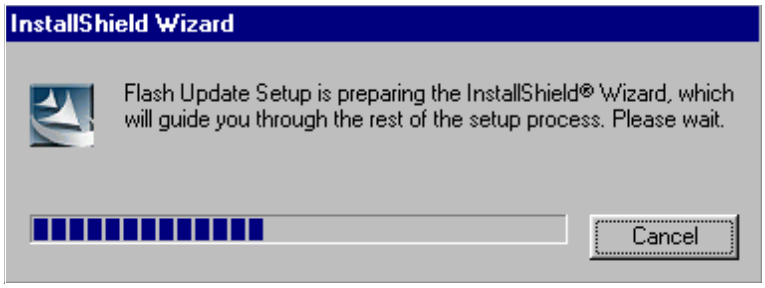
- Install Phoenix service SW and Phoenix data package.
- Install the phone model specific data package for Phoenix.
- The flash support files are delivered in the same installation package with Phoenix data package.
- Normally it is enough to install the data package only before updating the FPS-8.
- Separate installation package for flash support files is available, and the files can be updated according to instructions in this chapter.

Installing the flash support files

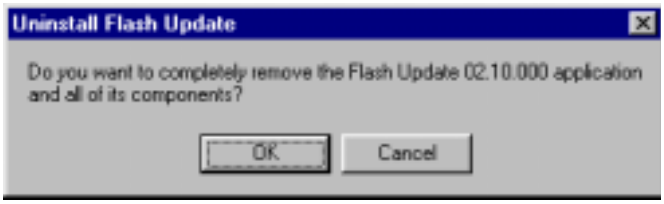
To start installing:

1. Double-click the flash update file (for example, ***flash_update_02_10_00.exe*.)**

   Installation begins.


InstallShield Wizard
Flash Update Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

2. If you already have the same flash update package files installed, you need to confirm if you want them to be reinstalled.


Uninstall Flash Update
Do you want to completely remove the Flash Update 02.10.000 application and all of its components?
OK
Cancel

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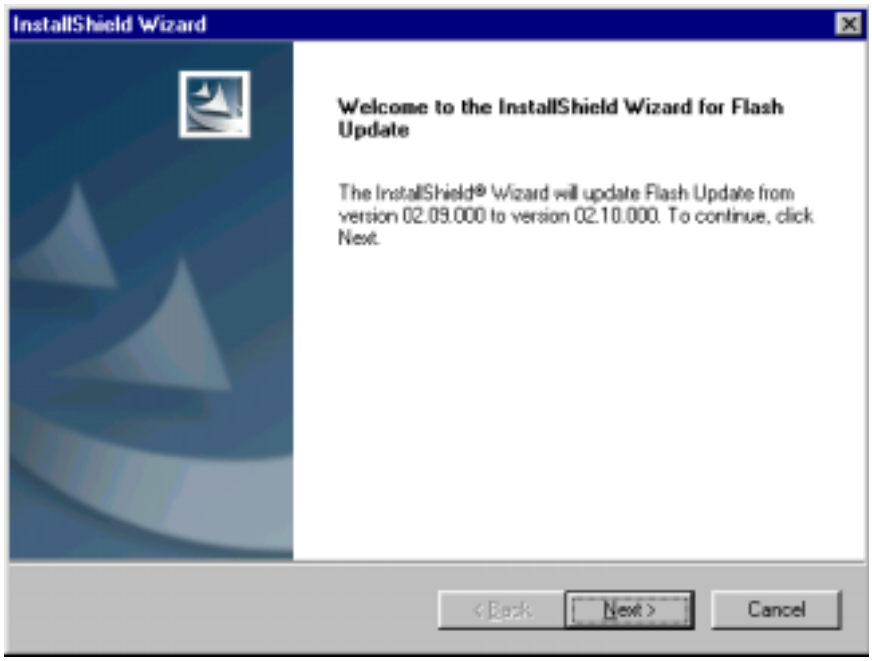
3. To continue installation, click “Next”.


InstallShield Wizard
Welcome to the InstallShield Wizard for Flash Update
The InstallShield® Wizard will update Flash Update from version 02.09.000 to version 02.10.000. To continue, click Next.
< Back
Next >
Cancel

It is **highly** recommended to install the files to the default destination folder ***C:\Program Files\Nokia\Phoenix***.

4. To continue, click “Next”.

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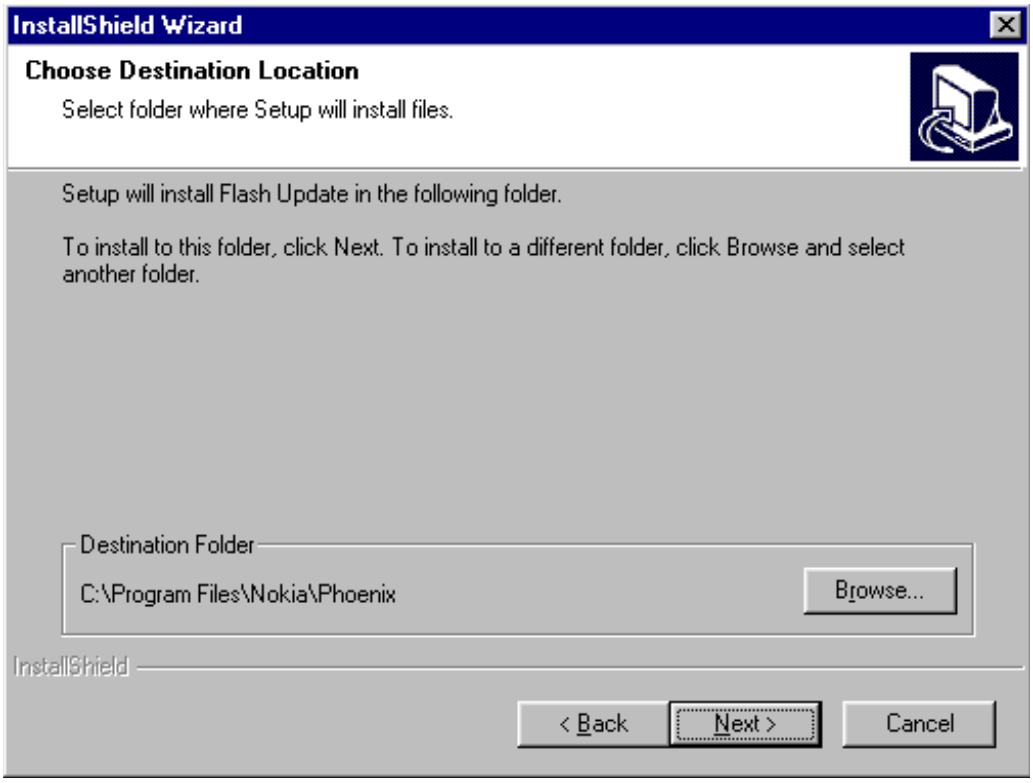
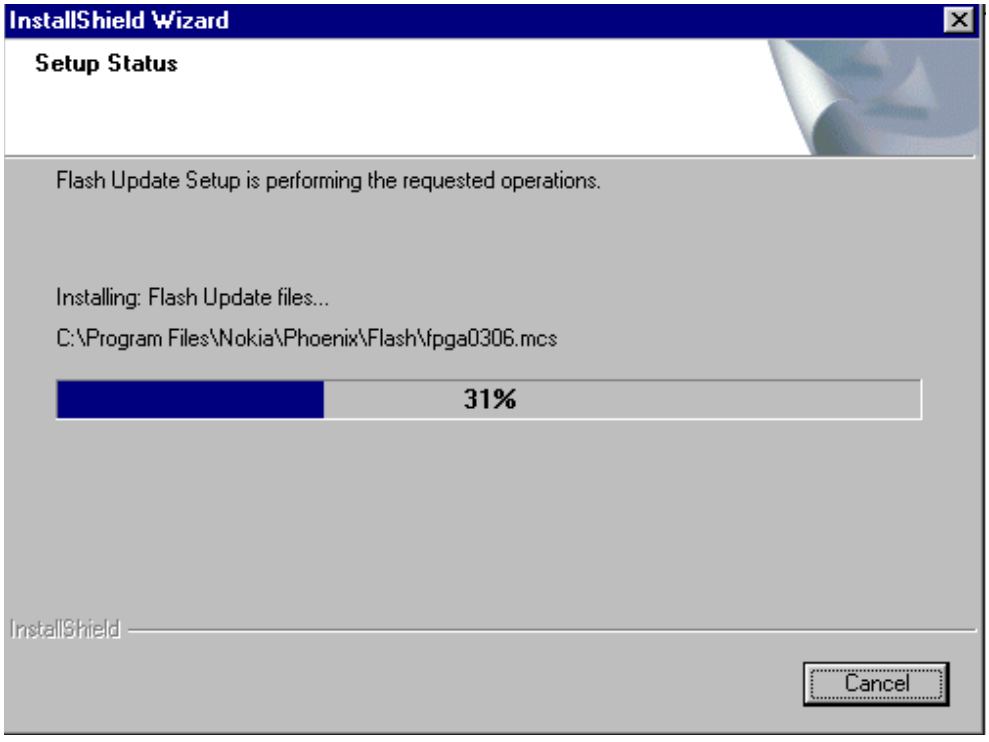
To choose another location, click “Browse” (not recommended).


InstallShield Wizard
Choose Destination Location
Select folder where Setup will install files.
Setup will install Flash Update in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\Nokia\Phoenix
Browse...
InstallShield
< Back
Next >
Cancel

Installation continues.



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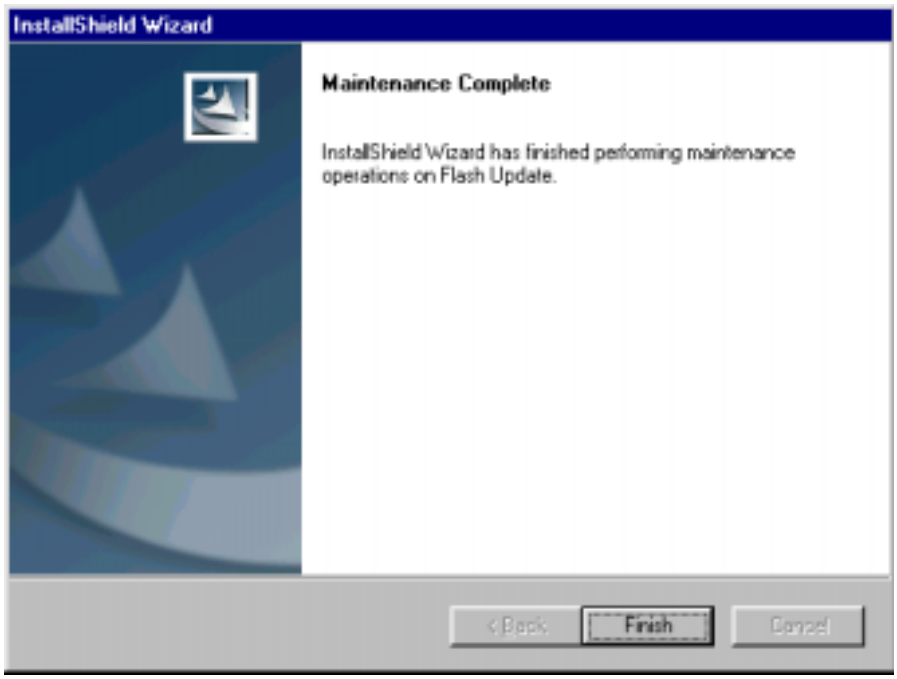
5. To complete the procedure, click “Finish”.



FLS-4S can be used right after flash update package is installed.

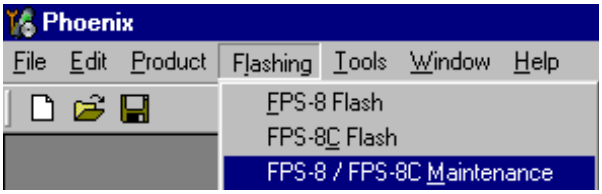
FPS-8* must be updated by using Phoenix!

Updating FPS-8* flash prommer SW

To start updating:

1. Start Phoenix service software

2. From the ”Flashing” menu, select ”FPS-8 / FPS-8C Maintenance”.



3. When new FPS-8 flash update package is installed to computer, you are asked to update the files to your FPS-8 prommer.

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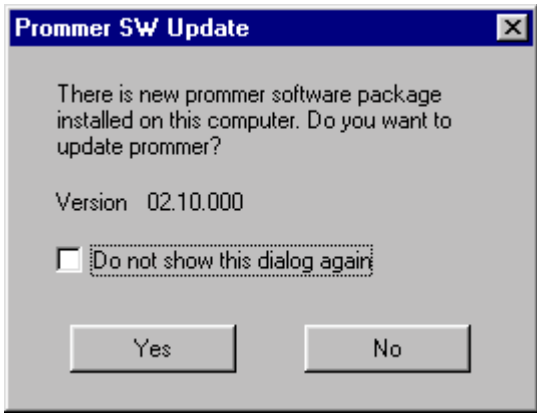
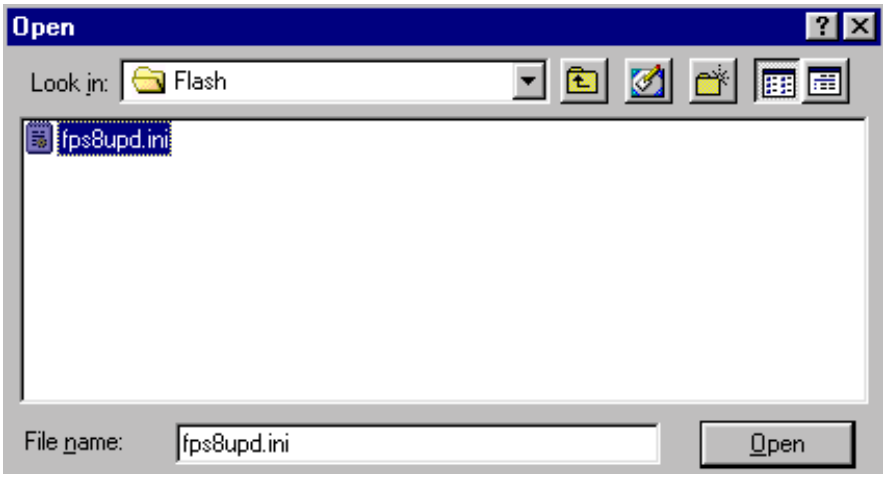
To update files, click ”Yes”.


Prommer SW Update
There is new prommer software package installed on this computer. Do you want to update prommer?
Version 02.10.000
Do not show this dialog again
Yes
No

You can also update FPS-8 software by pressing ”Update” button and selecting appropriate **fps8upd.ini** file under the ***C:\Program Files\Nokia\Phoenix*\Flash** directory.



The update procedure takes a couple of minutes.

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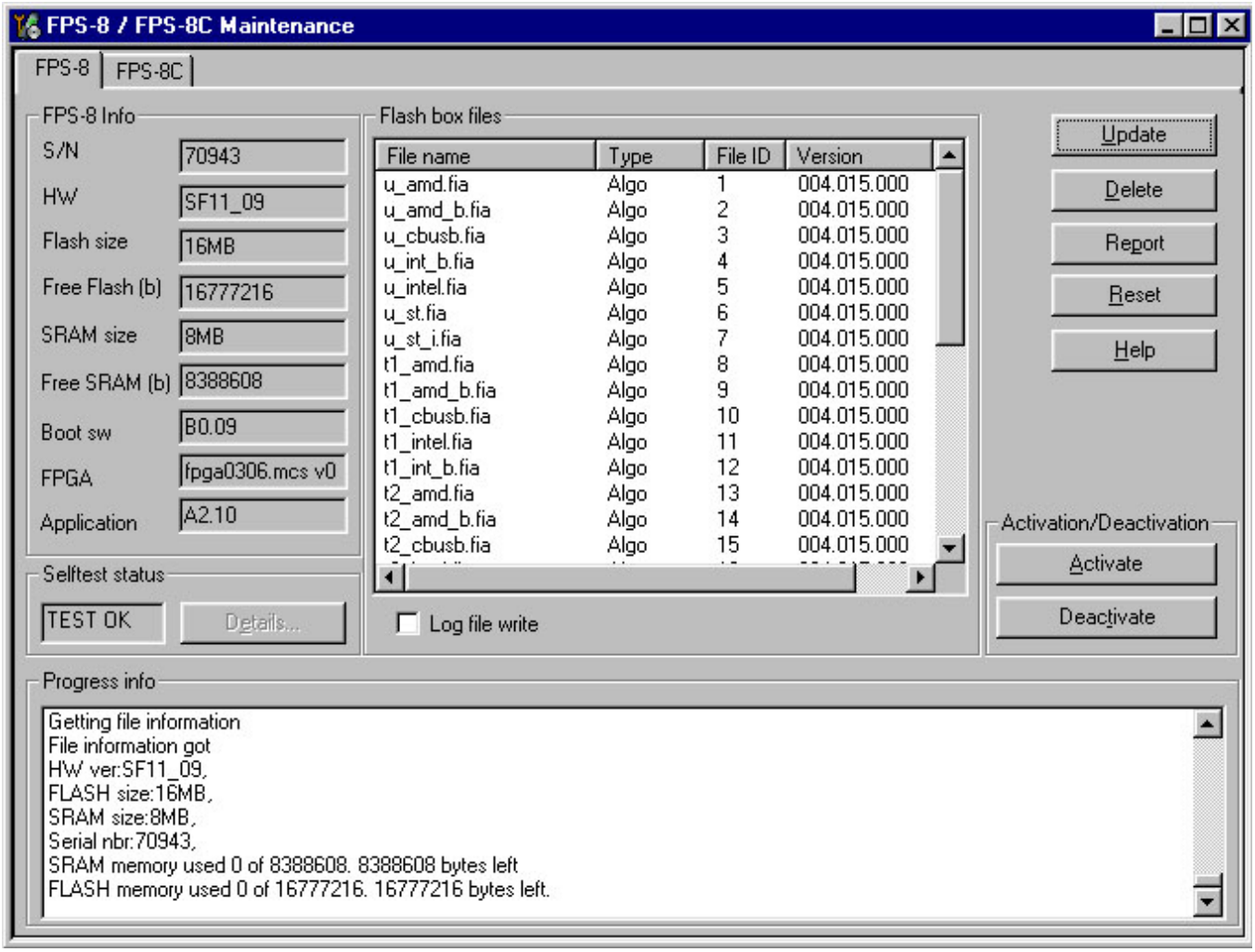

4. All files can be loaded separately to FPS-8. To do this, press the right mouse button in the “Flash box files” window and select the file type to be loaded.

More information and help can be found from the “Help” dialog.

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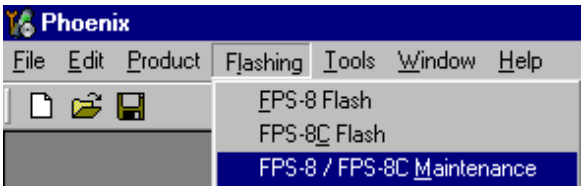
5. Activating and Deactivating FPS-8

- Before the FPS-8 can be successfully used for phone programming, it must be first activated.
- If there is a need to send FPS-8 box to repair for example, the box must be first deactivated.

Activating FPS-8

To activate:

1. Fill in first “FPS-8 activation request” sheet included in the FPS-8 sales package and follow the instructions in the sheet.
2. When activation file is received (e.g. 00000.in), copy it to ***C:\Program-Files\Nokia\Phoenix\BoxActivation*** directory on your computer (This directory is created when Phoenix is installed).
3. Start Phoenix service software.
4. From the ”Flashing” menu, select ”FPS-8 / FPS-8C Maintenance”.



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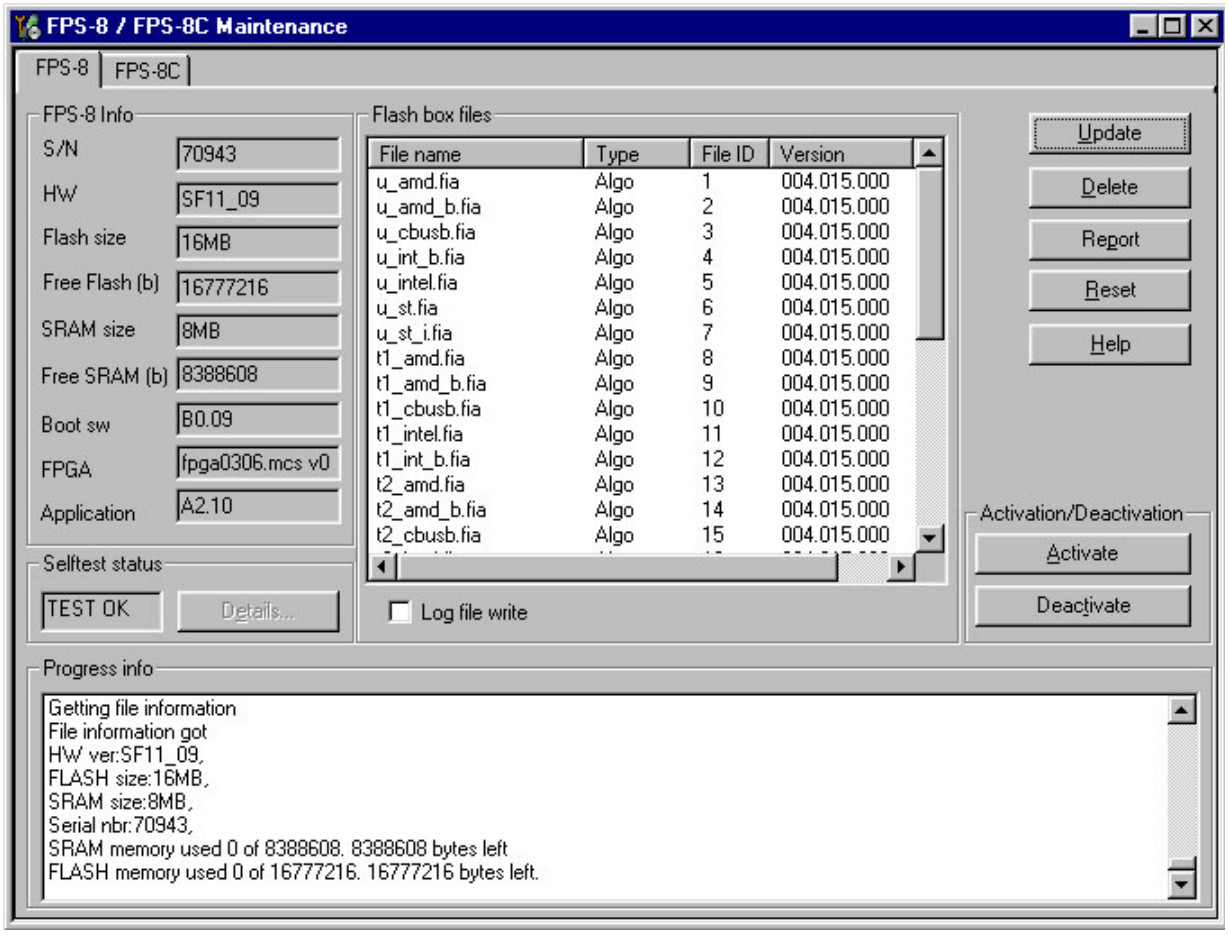
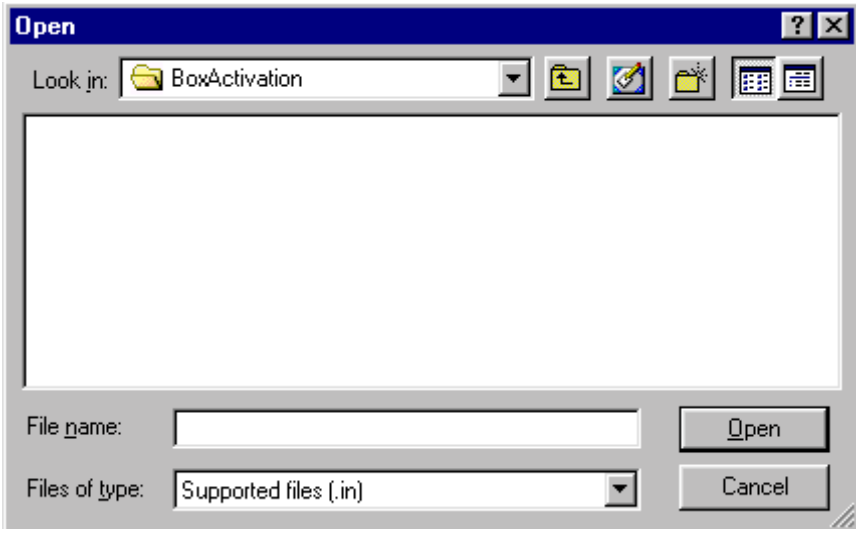
5. From the “FPS8/8C Maintenance” window, click “Activate”.



6. The activation file you saved to ***C:\ProgramFiles\Nokia\Phoenix\BoxActivation*** directory is shown (e.g. 00000.in). Check that it is correct.



7. To activate the box, click “Open”.
8. To complete activation, turn FPS-8 power off and on.

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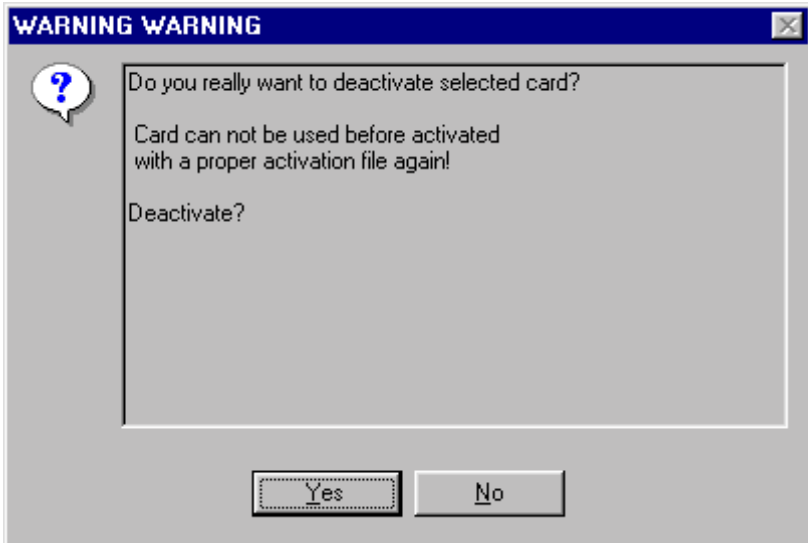
Deactivating FPS-8

To deactivate:

1. Start Phoenix service software.
2. From the ”Flashing” menu, select ”FPS-8 / FPS-8C Maintenance”.
3. In the “FPS8/8C Maintenance” window, click “Deactivate”.
4. To confirm deactivation, click “Yes”.



5. To complete deactivation, turn FPS-8 power off and on.

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6. JBV-1 Docking Station Software

The JBV-1 docking station is a common tool for all DCT-4 generation products. In order to make the JBV-1 usable with different phone models, a phone specific docking station adapter is used for different service functions.

The JBV-1 docking station contains software (Firmware) which can be updated.

You need the following equipment to be able to update JBV-1 software:

- PC with USB connection
- Operating system supporting USB (Not Win 95 or NT)
- USB cable (can be purchased from shops or suppliers providing PC hardware and accessories)
- JBV-1 docking station
- External power supply 11-16V

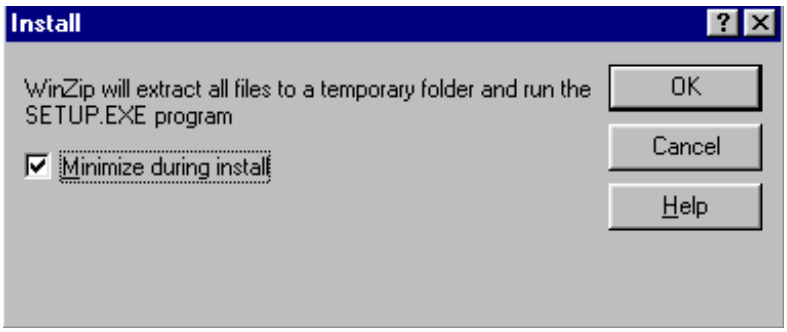
Before installation

- From your download web site, download *Jbv1_update.zip* file to your computer (e.g. C:\TEMP).
- Close all other programs.
- Follow instructions on the screen.

Installing software needed for the JBV-1 SW update

Note: DO NOT CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER YET!

1. Run the ***Jbv1_update.zip*** file.
2. To start SW Installation, double-click ***Setup.exe***
3. To continue, click “OK”.



Files needed for JBV-1 package setup program are extracted and installation begins.

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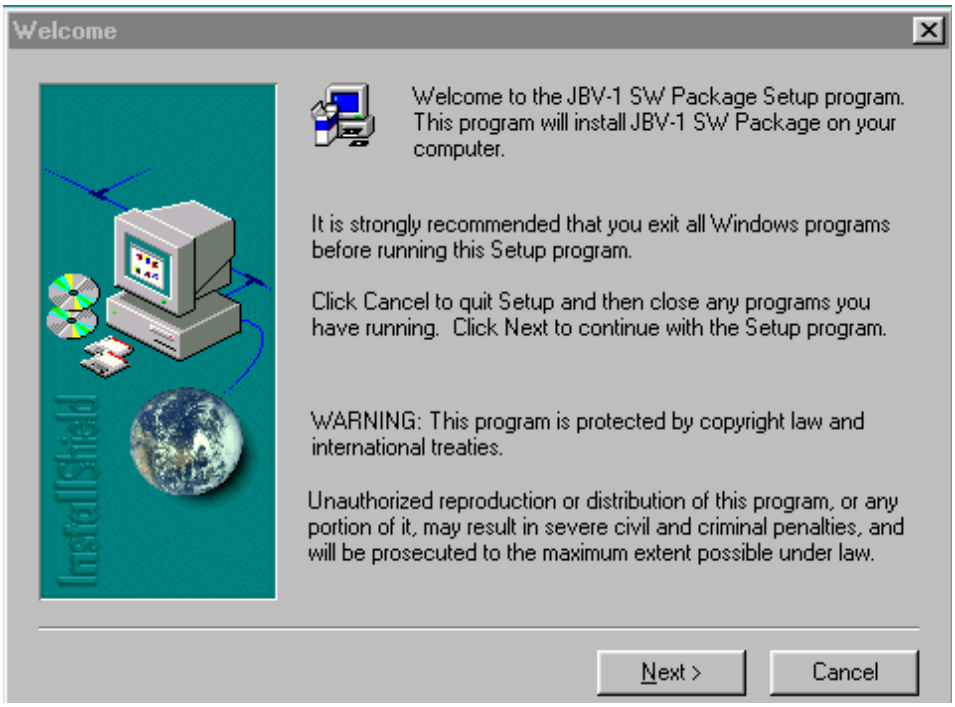
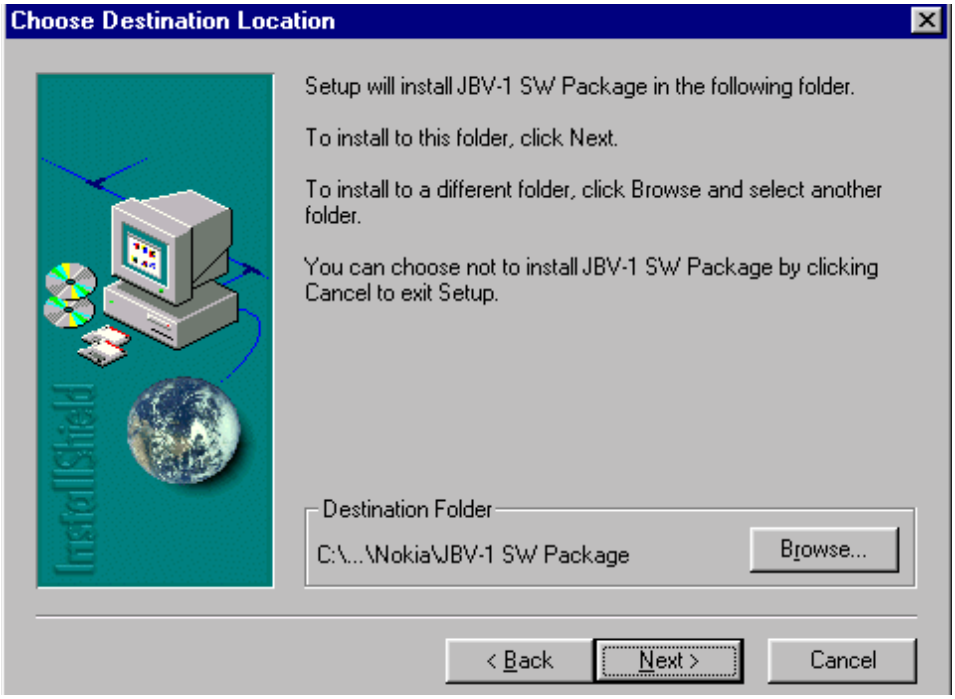
4. Please read the information shown and click “Next” to continue.


Welcome
Welcome to the JBV-1 SW Package Setup program. This program will install JBV-1 SW Package on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
InstallShield
Next >
Cancel

5. Use the suggested destination folder where JBV-1 SW package is installed.
6. To continue, click “Next”.


Choose Destination Location
Setup will install JBV-1 SW Package in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install JBV-1 SW Package by clicking Cancel to exit Setup.
Destination Folder
C:\...\Nokia\JBV-1 SW Package
Browse...
InstallShield
< Back
Next >
Cancel

7. Select “Full” installation.

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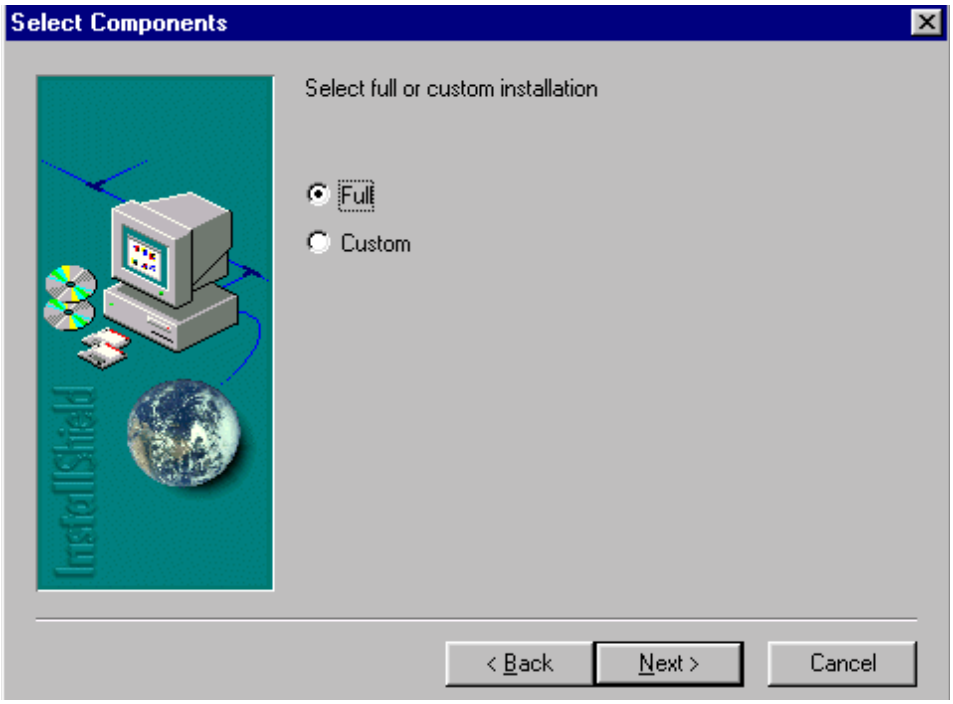
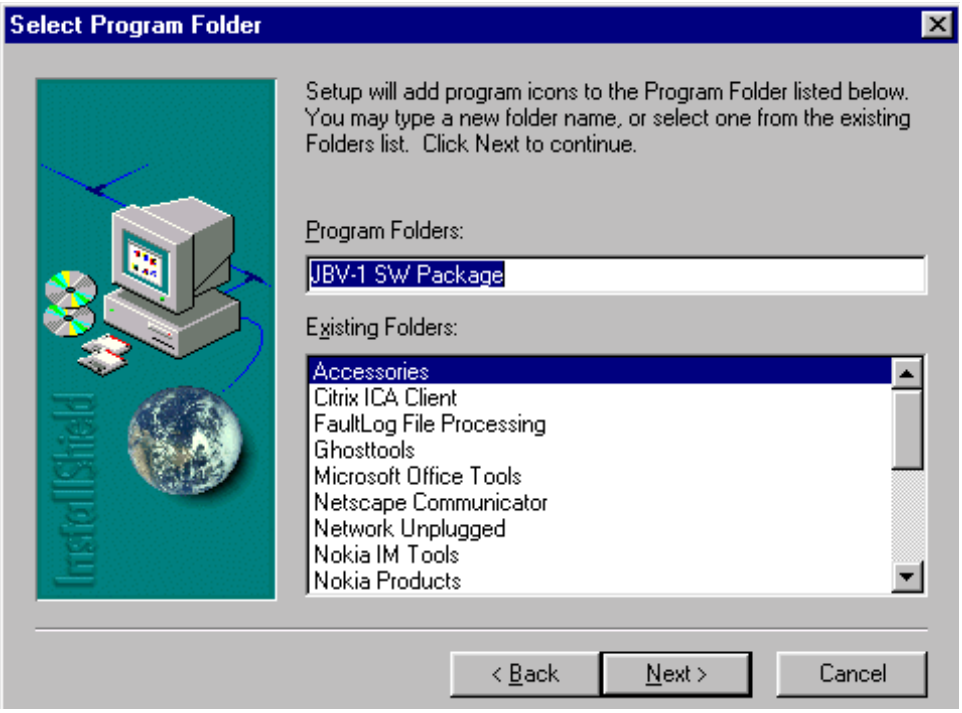
8. To continue, click “Next”.



The Program Folder is created.

9. To continue, click “Next”.

Software files are installed.



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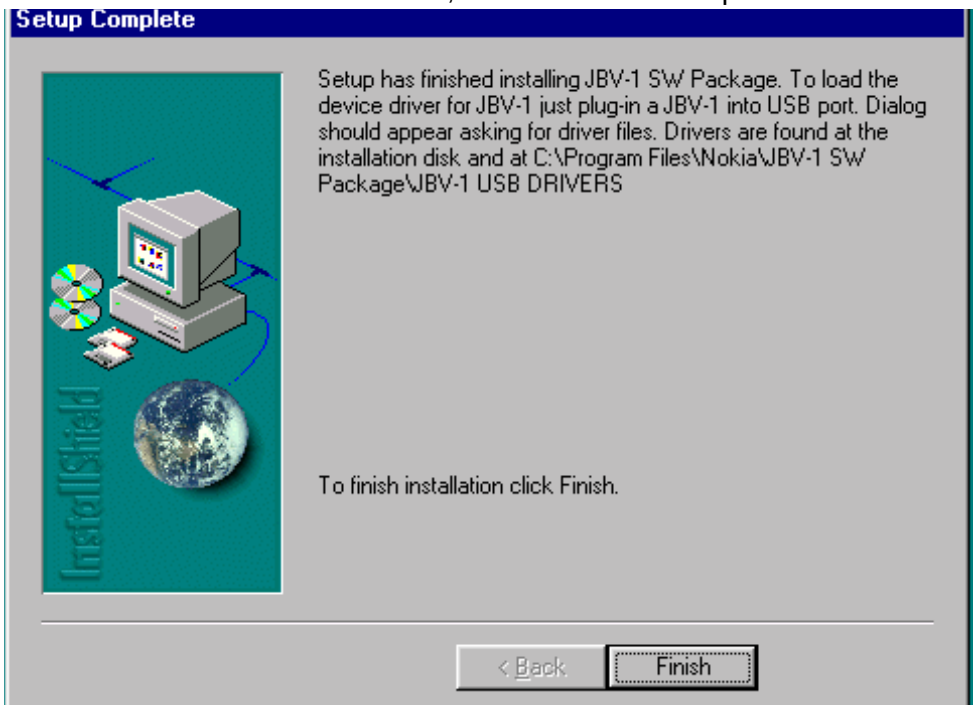
10.After successful installation, click “Finish” to complete.


Setup Complete
Setup has finished installing JBV-1 SW Package. To load the device driver for JBV-1 just plug-in a JBV-1 into USB port. Dialog should appear asking for driver files. Drivers are found at the installation disk and at C:\Program Files\Nokia\JBV-1 SW Package\JBV-1 USB DRIVERS
To finish installation click Finish.
InstallShield
< Back
Finish

NOW YOU CAN CONNECT THE USB CABLE / JBV-1 TO YOUR COMPUTER!

11.Connect power to JBV-1 (11-16V DC) from external power supply.

12.Connect the USB cable between JBV-1 USB connector and your PC.

Windows detects the connected USB cable and drivers for new HW.

13.Follow the instructions and allow Windows to search and install the best drivers available. After this procedure the actual JBV-1 SW update can begin.

Add New Hardware Wizard
This wizard searches for new drivers for:
USB Device
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

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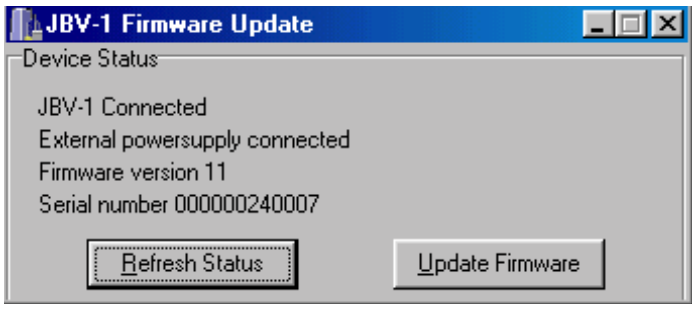
Updating JBV-1 docking station software

To update the JBV-1 docking station software:

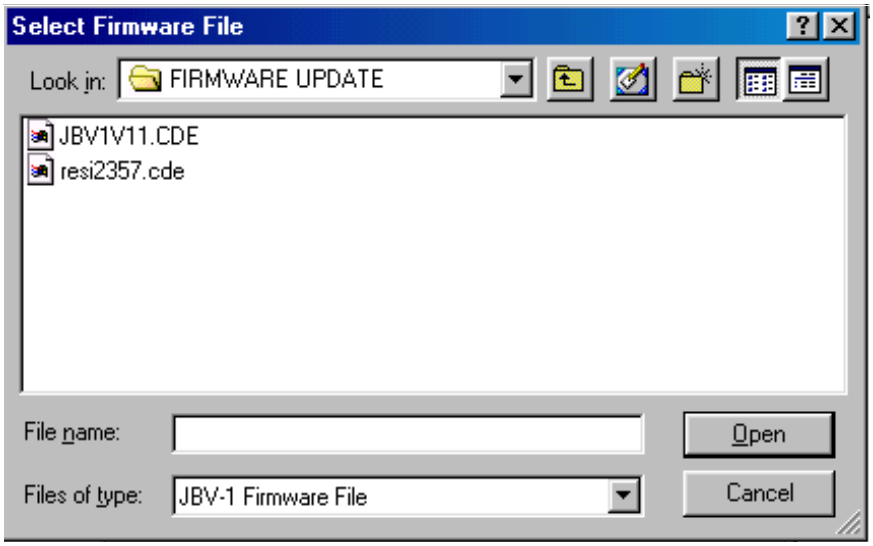
1. Go to folder *C:\Program Files\Nokia\ JBV-1 SW Package\ FIRMWARE UPDATE.*
2. To start JBV-1 update SW, double-clicking *fwup.exe.*

JBV-1 firmware update starts and shows the current status of the JBV-1 connected.

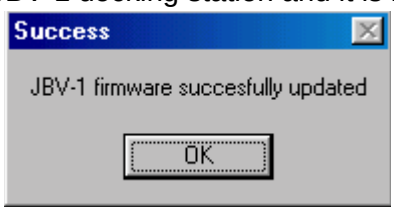
3. If the firmware version read from your JBV-1 is not the latest one available, it needs to be updated. To update, click “Update Firmware”.



4. Choose file *JBV1v11.CDE* (example used here is for v 11).
5. To update your JBV-1, click “Open”.



After a successful update, the current JBV-1 status is shown. You have now updated the software of your JBV-1 docking station and it is ready for use.



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7. Receiver Tuning: Quick Guide for Tuning with Phoenix

General remarks

- RF tunings must be performed in the same order as shown in this document. The order of the corresponding menu items in the service SW may be different.
- If baseband tunings are needed, they should be completed before RF tunings.
- Avoid unnecessary tuning – factory-tuning values are always the most accurate ones.

NOTE! RF tunings need to be done ONLY if any RF block component is replaced.

- Screenshots described in this document may change as the service software is developed.
- Kindly refer to the Phoenix help files, the phone model specific service manual and technical bulletins for help.

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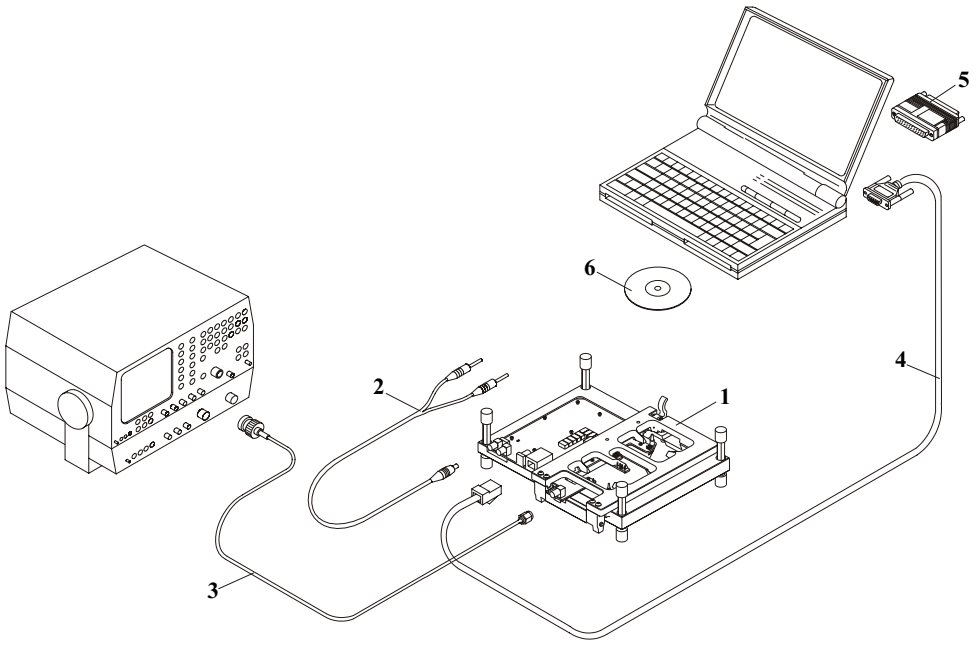
Service tool concept for RF tuning operations

NOTE! RF tunings need to be done ONLY if any RF block component is replaced.

- All RF tuning operations must be carried out in the MJ-13 module jig!
- Power to MJ-13 must be supplied from an external DC power supply, not from the FPS-8 prommer
- MJ-13 input voltages:
  - Maximum + 12 VDC (Regulated mode)
  - Maximum + 4.6 VDC (Bypass mode)
  - Nominal input for RF tunings is +4.2 VDC (Bypass mode)
- Remember the cable attenuation when setting required RF levels

Figure 1:RF tuning setup



Item	Service accessory	Type	Product code
1	Module jig	MJ-13	0770666
2	DC power cable	PCS-1	0730012
3	Modular cable	XRF-1	0730085
4	Service Mbus cable	DAU-9S	0730108
5	Software protection key	PKD-1	0750018
6	Service SW	CD-ROM	

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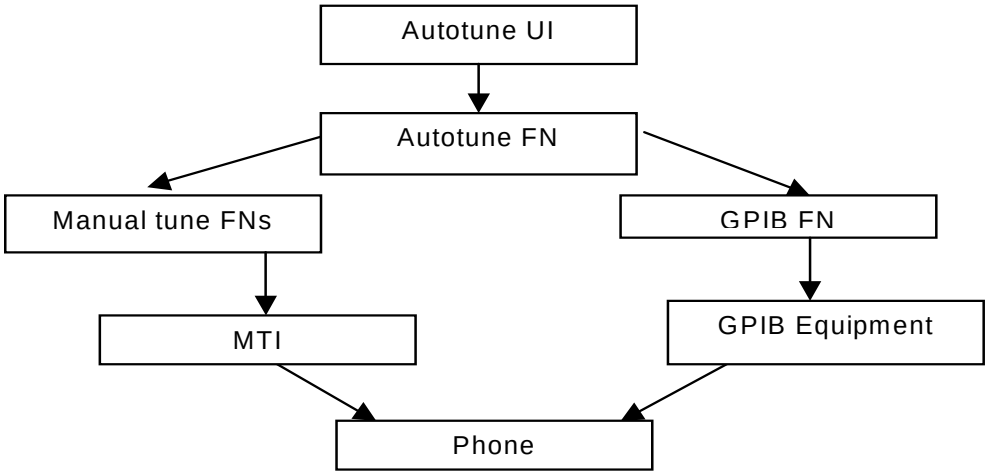
Autotuning

Autotune feature is designed to align product's RF part easier and faster. By this autotune component, the product is tuned automatically. The user only needs to press '**Tune'** and the product's RF is tuned and results are shown to the user. Component controls all the needed RF equipment (RF generator and Tx measuring device) except voltage supplier.

NOTE! Automatic tuning is ALWAYS the primary tuning mode.

The following diagram describes how the autotune component is located in the TSS architecture:

Figure 2:Autotune component in TSS architecture



Autotune is a pair of two different components. One is User Interface and the other is FunctioNal. UI does not contain any functionality. MTI takes care of phone messages.

The Autotune component can be found under the Tuning menu:

Figure 3:Autotune menu in Phoenix

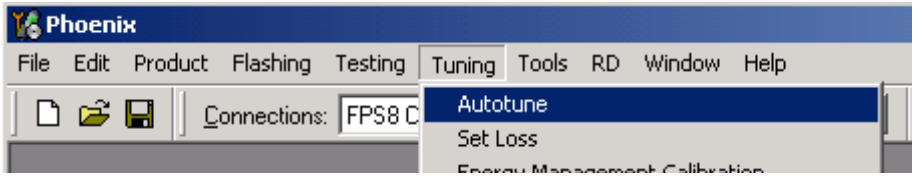


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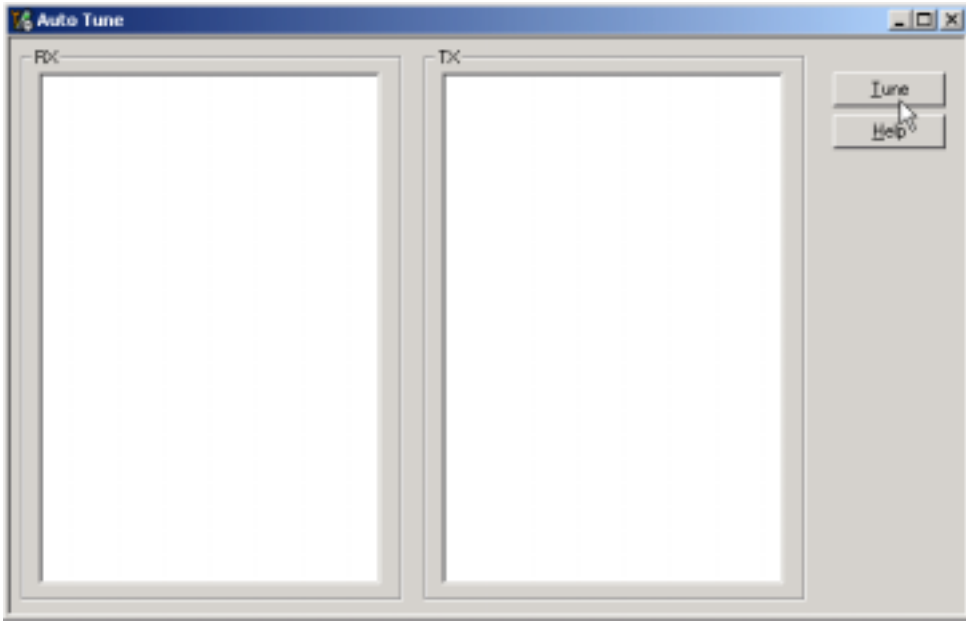
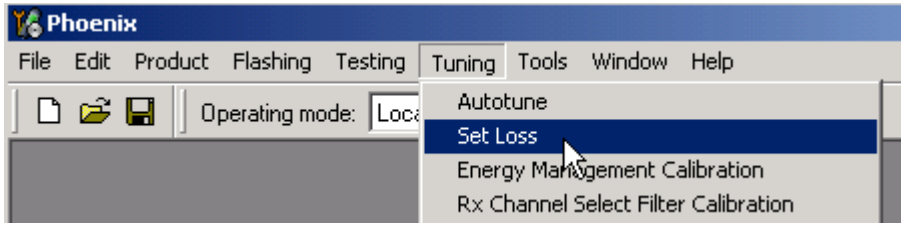
Figure 4:Autotune menu - RX/TX menu



Set loss

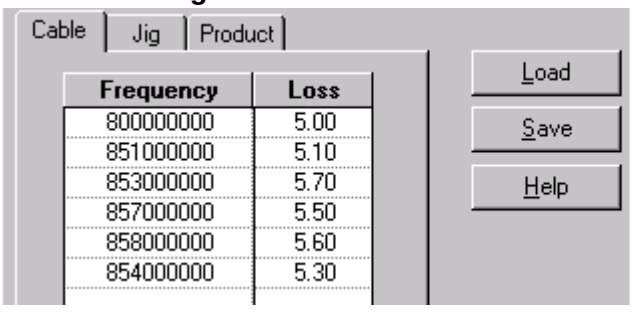
Figure 5:Set Loss menu



This is the component for saving RF-losses (of cables and jigs) to file. These loss values are needed when you tune the phone with Phoenix (using Auto-Tune component). When you measure the losses you have to be very careful, because these values affect directly how well the phone is tuned.

NOTE! This component is only for Auto-Tune uses.

Figure 6:Loss values



Environment

Hardware requirements:

PC with Windows 98/2000/NT

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Power supply

Product specific module jig

RF-splitter and -cables

RF equipment (only one of each is needed)

Tx:

Agilent E4406 (VSA series transmitter tester)

Agilent E4445 (PSA series transmitter tester)

Rohde&Schwarz, FSE-family of signal analyzers

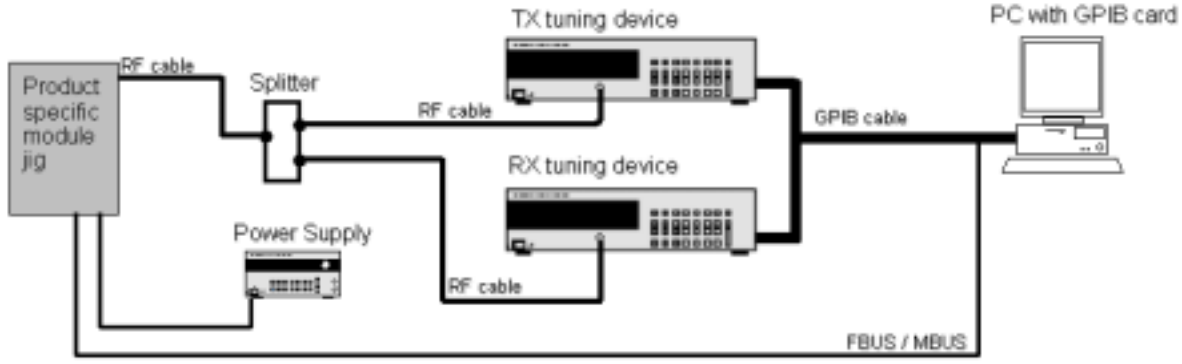
Rohde&Schwarz, FSIQ-family of signal analyzers

Rx:

Agilent ESG family of RF signal generators

Rohde&Schwarz, SME-family of signal generators

Figure 7:Setup environment



GPIB addresses are not defined. Component finds the addresses and uses them automatically.

If several Tx tuning devices are connected, this component uses Agilent (VSA or PSA). On the Rx side, Agilent has the highest priority.

Protection

Components are protected by PKD-1CS, PKD-1NS, PKD-1 and PKD-1P dongles using standard TSS protection procedure. Autotuning itself is possible with all these dongles but with PKD-1P and PKD-1 dongles user is not able to set the loss.

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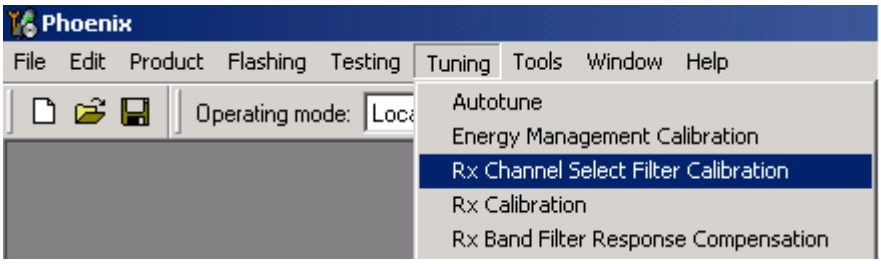
Receiver manual tuning

Rx Channel Select Filter Calibration

- Extra equipment / external RF signal is not needed.
- Must be done before other Rx calibrations.
- This function is used to calibrate Rx channel select filter in GSM phones.
- Rx channel select filter is tuned only in one band = Single calibration for every band.

To start calibrating:

1. From the “Tuning” menu, choose “Rx Channel Select Filter Calibration”.

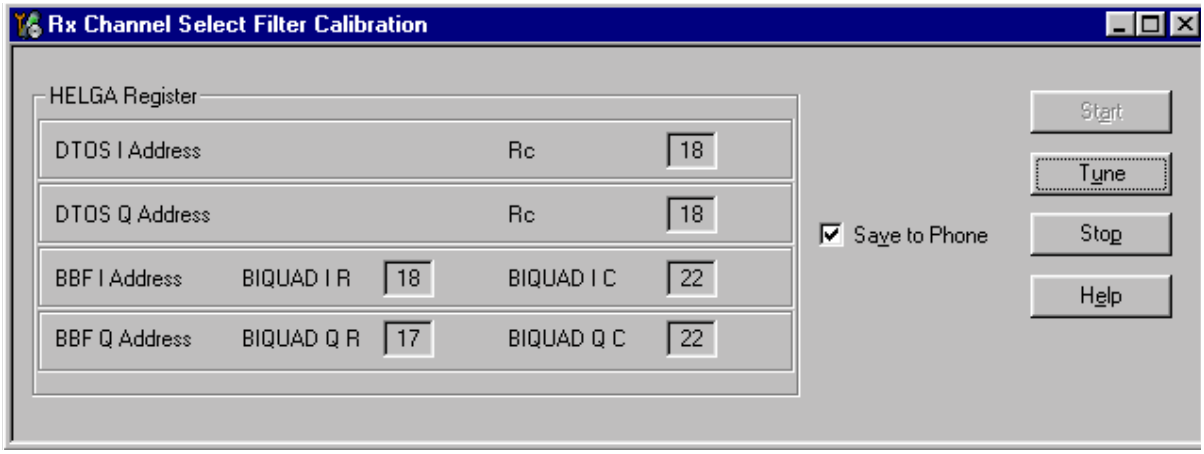


2. To start the tuning, click "Tune".

   Tuning values must be 0…31

   “Save to Phone “is checked by default

   If you do not want the values to be saved to phone, uncheck “Save to Phone “ (e.g. testing).



3. If values shown are within limits, click “Stop”

4. To end tuning, and to save the values to the phone, close the “Rx Channel Select Filter Calibration“ dialog box.

Rx Calibration

- RF generator is needed.
- This tuning performs Rx calibration.

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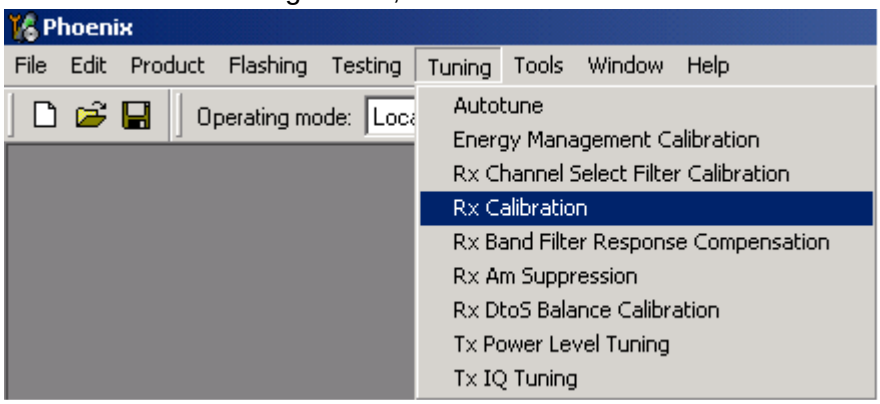
- Must be done separately on every band!
- Calibration is automatically performed at GSM850, then at GSM1800 and finally at GSM1900 band. If tuning is successful, it continues in the next band
- AFC tuning is done while GSM850 band Rx Calibration is performed

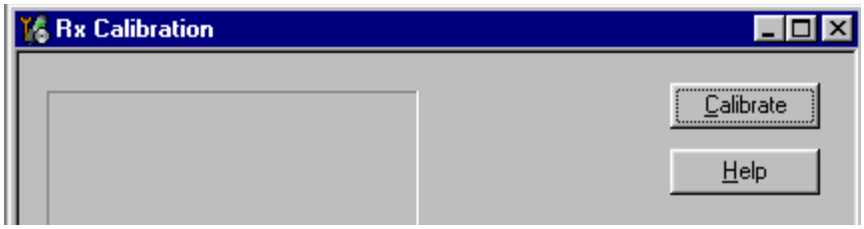
Note! Remember to take jig and cable attenuations into account!

To start calibrating:

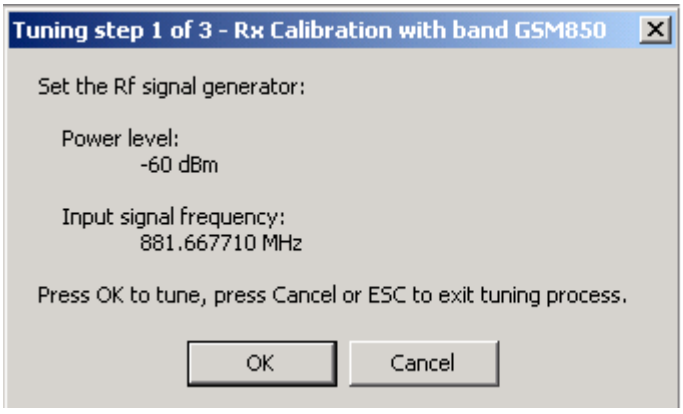
1. From the “Tuning” menu, choose “Rx Calibration”.



2. To start tuning, click “Calibrate".



3. Set RF generator to required GSM850 frequency => OK.
4. Set RF generator to required GSM850 frequency => OK.


Tuning step 1 of 3 - Rx Calibration with band GSM850
Set the Rf signal generator:
Power level:
-60 dBm
Input signal frequency:
881.667710 MHz
Press OK to tune, press Cancel or ESC to exit tuning process.
OK
Cancel

Tuning values and ADC readings are shown.

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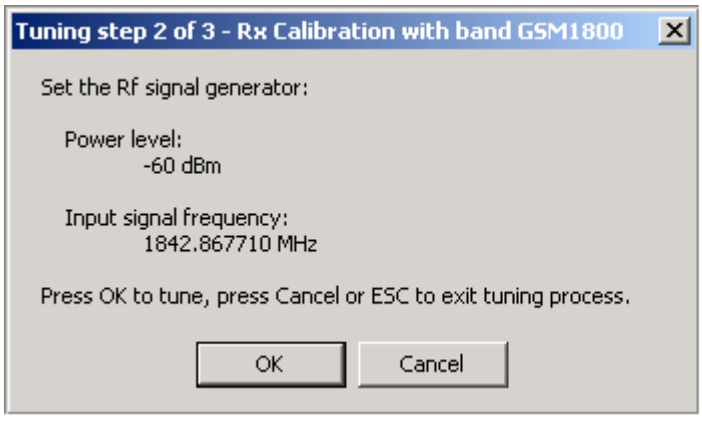
Table 1: Typical values and limits in (GSM850) Rx calibration

GSM850	Typical value	Low limit	High limit
Afc value:	-90	-350	350
Afc slope:	270	150	350
Rssi 0:	65.09375	58	68
Rssi 1:	71.09375	64	74
Rssi 2:	76.90625	70	80
Rssi 3:	82.90625	76	86
Rssi 4:	88.90625	82	92
Rssi 5:	93.71875	88	98
Rssi 6:	99.71875	94	104
Rssi 7:	105.53125	100	110
Rssi 8:	111.53125	106	116
Rssi 9:	117.53125	112	122
Rssi 10:	123.53125	118	128
Rssi 11:	129.53125	124	134
Rssi 12:	135.53125	130	140
Rssi 13:	141.53125	136	146
Rssi 14:	147.53125	142	152

5. Set RF generator to required GSM1800 frequency => OK.


Tuning step 2 of 3 - Rx Calibration with band GSM1800
Set the Rf signal generator:
Power level:
-60 dBm
Input signal frequency:
1842.867710 MHz
Press OK to tune, press Cancel or ESC to exit tuning process.
OK
Cancel

Tuning values and ADC readings are shown.

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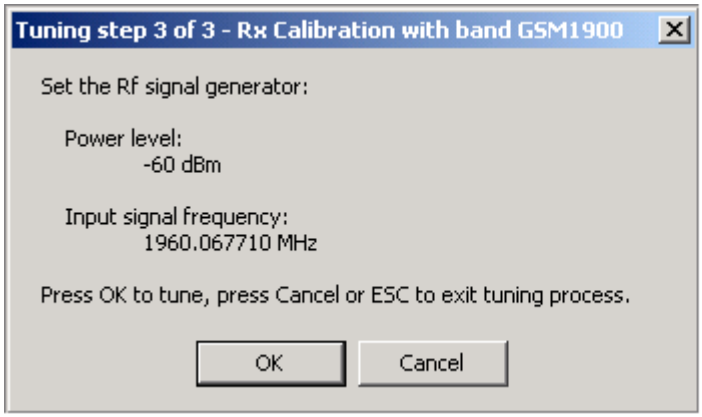
Table 2: Typical values and limits in (GSM1800) Rx calibration

GSM1800	Typical value	Low limit	High limit
Rssi 0:	62.40625	58	68
Rssi 1:	68.40625	64	74
Rssi 2:	74.265625	70	80
Rssi 3:	80.265625	76	86
Rssi 4:	86.265625	82	92
Rssi 5:	91.859375	88	98
Rssi 6:	97.859375	94	104
Rssi 7:	103.71875	100	110
Rssi 8:	109.71875	106	116
Rssi 9:	115.71875	112	122
Rssi 10:	121.71875	118	128
Rssi 11:	127.71875	124	134
Rssi 12:	133.71875	130	140
Rssi 13:	139.71875	136	146
Rssi 14:	145.71875	142	152

6. Set the RF generator to required GSM1900 frequency => OK.


Tuning step 3 of 3 - Rx Calibration with band GSM1900
Set the Rf signal generator:
Power level:
-60 dBm
Input signal frequency:
1960.067710 MHz
Press OK to tune, press Cancel or ESC to exit tuning process.
OK
Cancel

Tuning values and ADC readings are shown.

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Table 3: Typical values and limits in (GSM1900) Rx calibration

GSM1900	Typical value	Low limit	High limit
Rssi 0:	66.25	61	71
Rssi 1:	72.25	67	77
Rssi 2:	78.09375	73	83
Rssi 3:	84.09375	79	89
Rssi 4:	90.09375	85	95
Rssi 5:	93.25	88	98
Rssi 6:	99.25	94	104
Rssi 7:	105.09375	100	110
Rssi 8:	111.09375	106	116
Rssi 9:	117.09375	112	122
Rssi 10:	123.09375	118	128
Rssi 11:	129.09375	124	134
Rssi 12:	135.09375	130	140
Rssi 13:	141.09375	136	146
Rssi 14:	147.09375	142	152

If values are within limits, they are saved to the phone after successful tuning of each band.

7. To end tuning, close the “Rx Calibration” dialog box.

Rx Band Filter Response Compensation

- RF generator is needed.
- This operation must be done separately on every band!
- Start Rx calibration at GSM850, then continue at GSM1800 band and finally on the GSM1900 band.

NOTE! Remember to do Rx calibration before doing Rx Band Filter Response Compensation!

Remember to take jig and cable attenuations into account!

To start Rx band filter response compensation:

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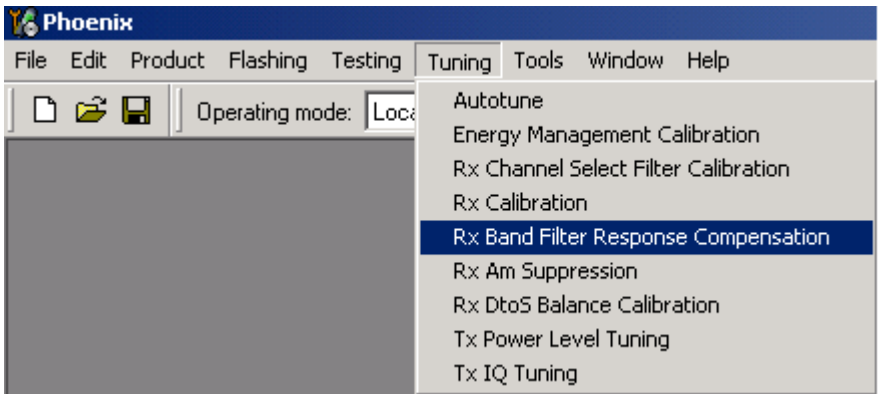
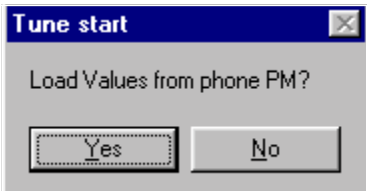
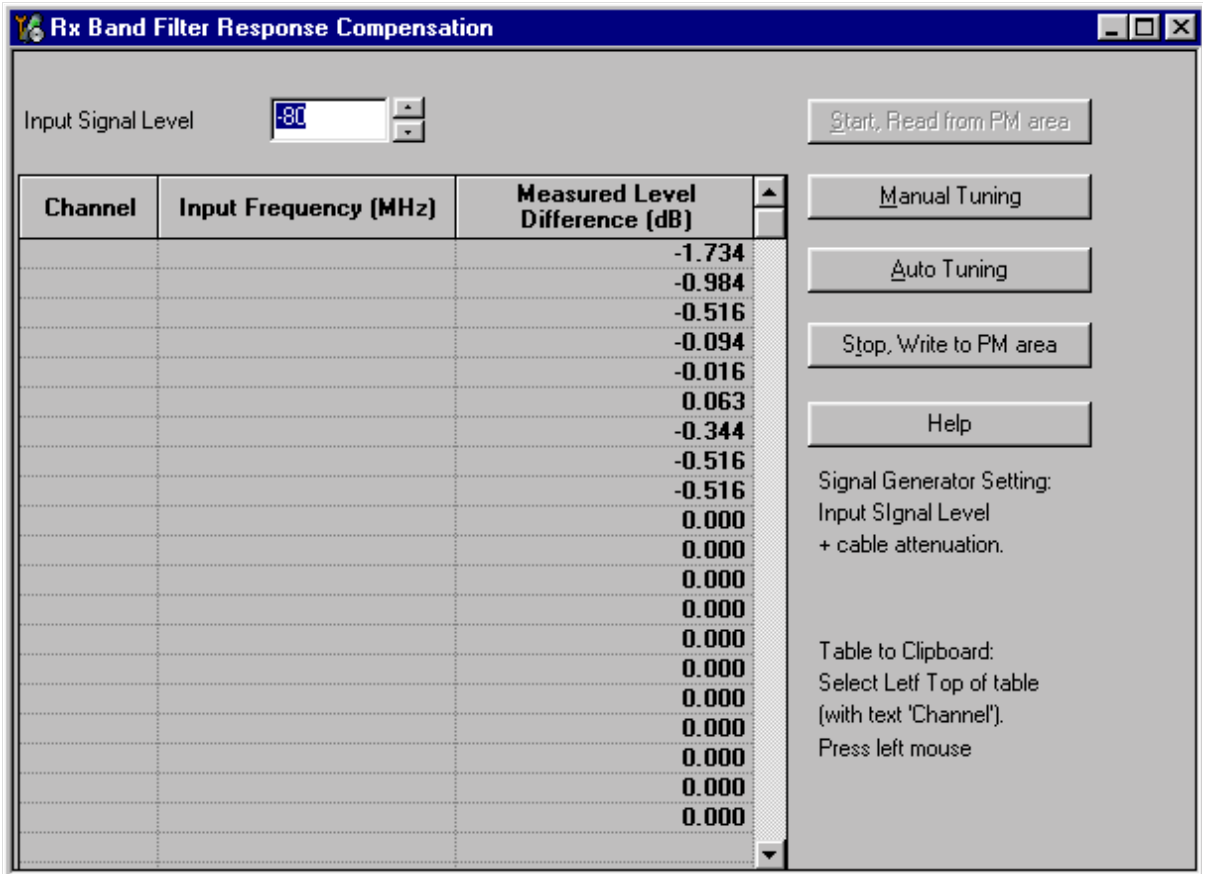
1. From the “Tuning” menu, choose “Rx Band Filter Response Compensation”.



2. To start tuning with values already saved to the phone, click “Yes”.



3. To start tuning, click "Manual tuning".



You are asked to supply 9 different RF frequencies to the phone.

The tuning begins from the GSM850 band and continues the same way for the GSM1800 and GSM1900 bands.

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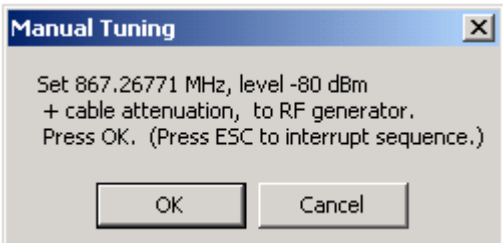
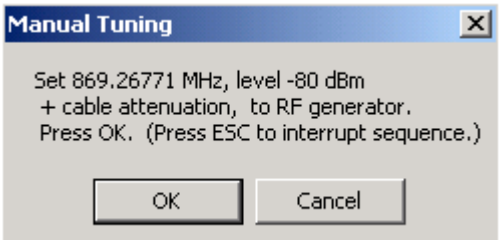
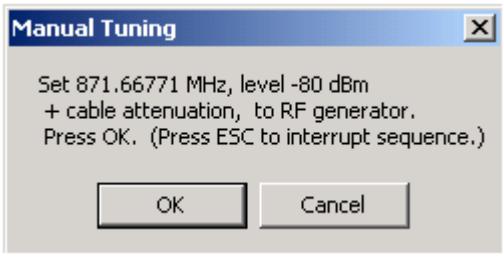
4. Set the first required frequency and level => OK.



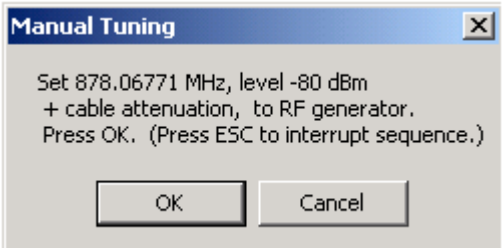
5. Set the 2nd required frequency and level => OK.



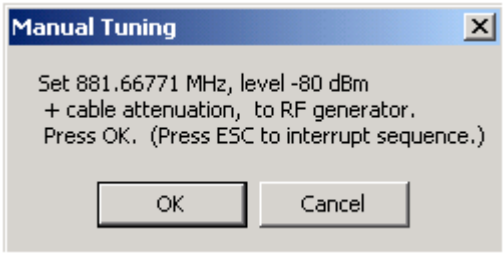
6. Set the 3rd required frequency and level => OK.



7. Set the 4th required frequency and level => OK.



8. Set the 5th required frequency and level => OK.



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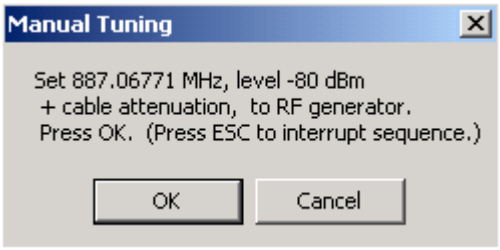
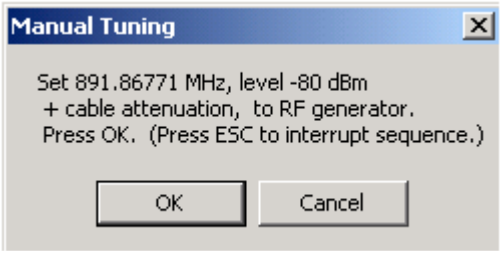
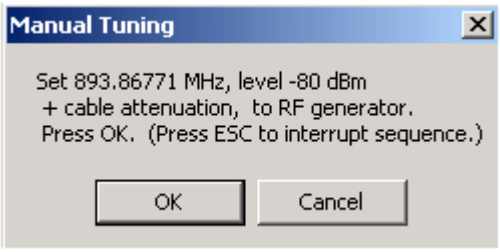
9. Set the 6th required frequency and level => OK.



10. Set the 7th required frequency and level => OK.



11. Set the 8th required frequency and level => OK.



12. Set 9th required frequency and level => OK.

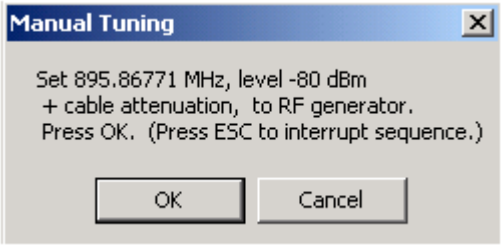


Table 4: Typical values and limits in Rx Band Filter Response Compensation GSM850:

Channel	Input Frequency (MHz)	Low limit (dB)	High limit (dB)
118	863.26771	-10	3.5
128	869.26771	-3.5	3.5
140	871.66771	-3.5	3.5
172	878.06771	-3.5	3.5
190	881.66771	-3.5	3.5
217	887.06771	-3.5	3.5
241	891.86771	-3.5	3.5
251	893.86771	-3.5	3.5
261	895.86771	-10	3.5

13. Click "Stop, write to PM area".

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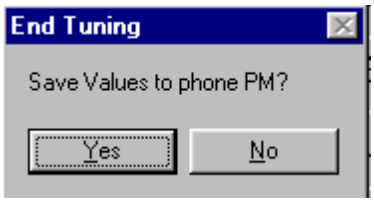
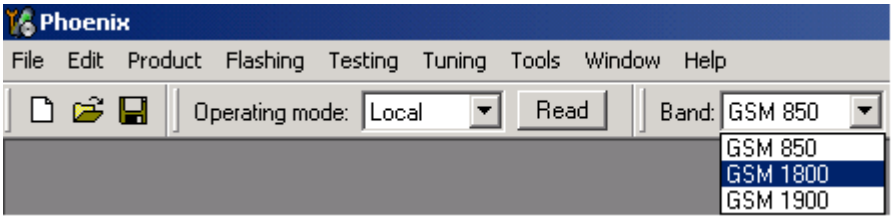
14.If the values shown are within limits, click “Yes” to save values to the phone.



15.To continue tuning from GSM1800, choose the correct band from the drop-down menu.



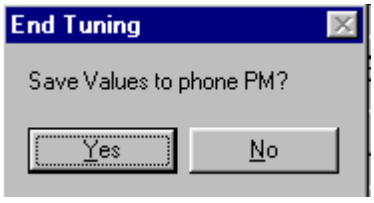
Repeat the same steps as for the GSM850 band above.

Table 5: Typical values and limits in Rx Band Filter Response Compensation GSM1800:

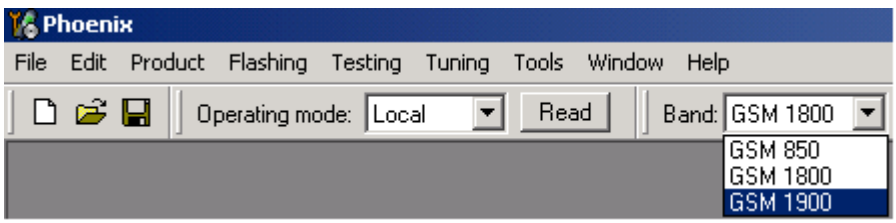
Channel	Input Frequency (MHz)	Low limit (dB)	High limit (dB)
497	1802.26771	-10	3.5
512	1805.26771	-3.5	3.5
535	1809.86771	-3.5	3.5
606	1824.06771	-3.5	3.5
700	1842.86771	-3.5	3.5
791	1861.06771	-3.5	3.5
870	1876.86771	-3.5	3.5
885	1879.86771	-3.5	3.5
908	1884.46771	-10	3.5

16.Click "Stop, write to PM area".

17.If the values shown are within limits, click “Yes” to save values to the phone.



18.To continue tuning from GSM1900**,** choose the correct band from the drop-down menu.



Repeat the same steps as for the GSM850 and GSM1800 bands above.

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Table 6: Typical values and limits in Rx Band Filter Response Compensation GSM1900:

Channel	Input Frequency (MHz)	Low limit (dB)	High limit (dB)
496	1927.06771	-10	3.5
512	1930.26771	-3.5	3.5
537	1935.26771	-3.5	3.5
586	1945.06771	-3.5	3.5
661	1960.06771	-3.5	3.5
736	1975.06771	-3.5	3.5
794	1986.66771	-3.5	3.5
810	1989.86771	-3.5	3.5
835	1994.86771	-10	3.5

19. Click "Stop, write to PM area".
20. If the values shown are within limits, click “Yes” to save values to the phone.
21. Close the “Rx Band Filter Response Compensation” dialog box to end tuning.

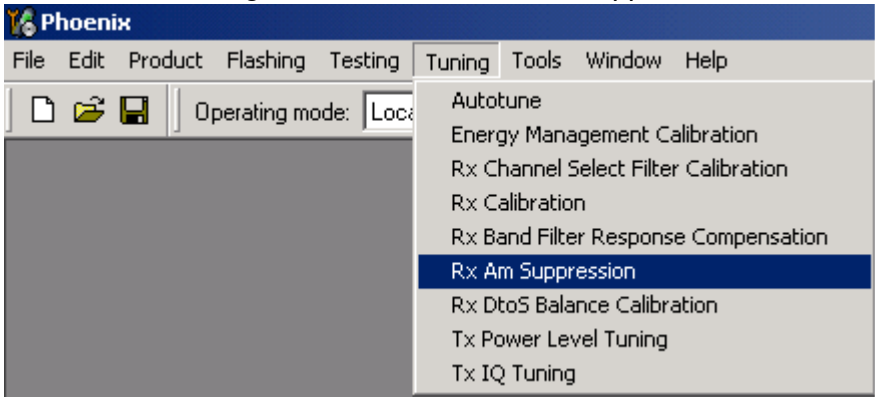
Rx Am Suppression

- RF generator is needed.
- Must be done separately on every band!
- Start Rx Am Suppression at GSM850, then continue at GSM1800 band and finally at the GSM1900 band.

Note! Remember to take jig and cable attenuations into account!

To start Rx Am Suppression:

1. From the “Tuning” menu, choose “Rx Am Suppression”.



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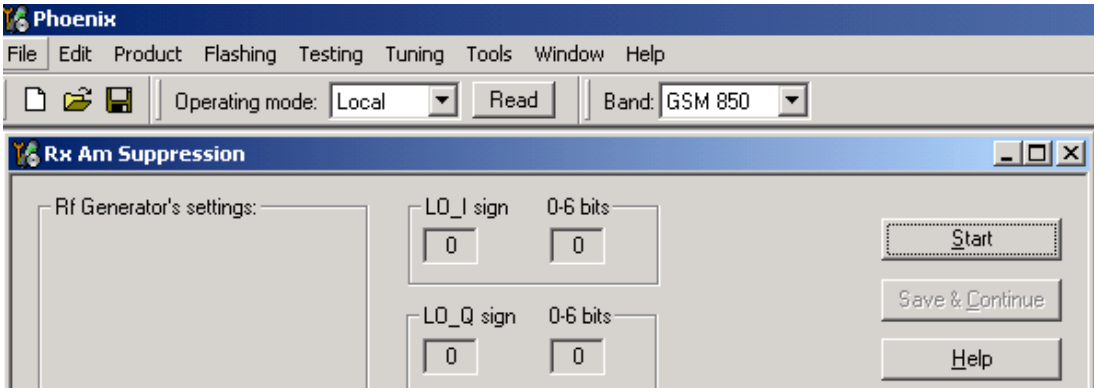
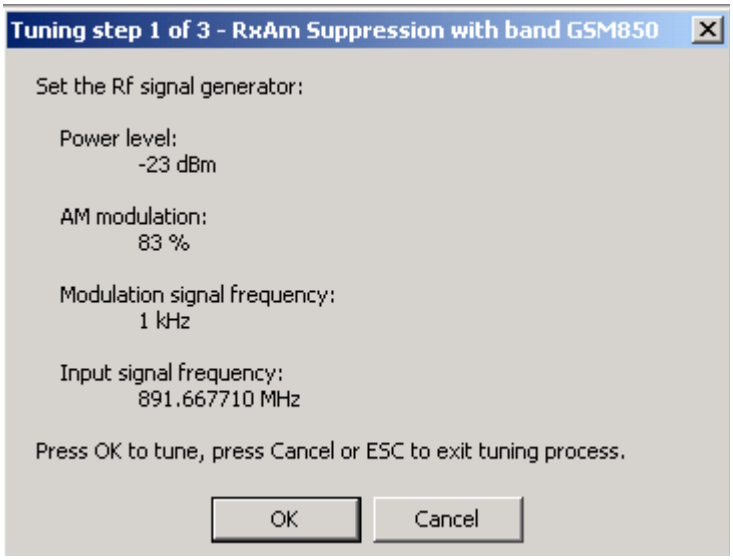
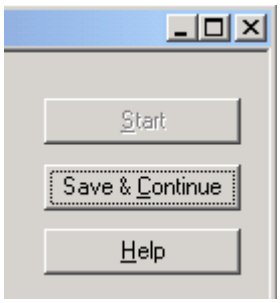
2. To begin tuning, click “Start”.



3. Adjust signal generator accordingly and click “OK” to tune.



4. When tuning is finished, click “Save & Continue”.



Tuning continues automatically at the GSM1800 band.

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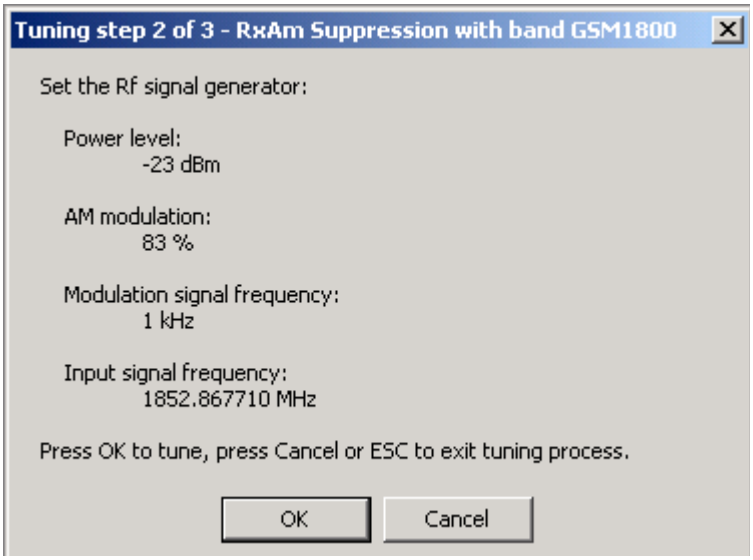
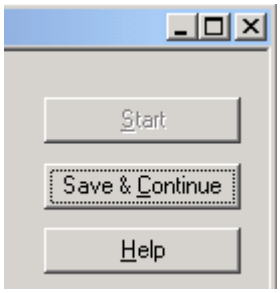
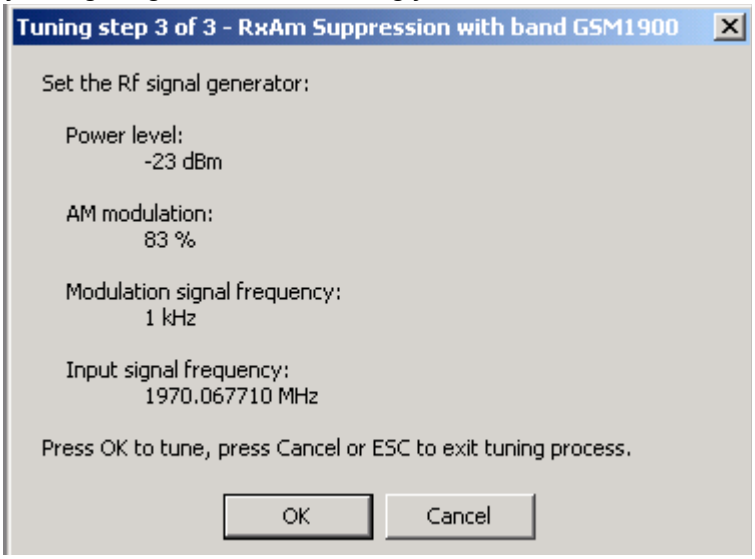
5. Adjust signal generator accordingly and click “OK” to tune.



6. When tuning is finished, click “Save & Continue”.



7. Tuning continues automatically at the GSM1900 band.
8. Adjust signal generator accordingly and click “OK” to tune.



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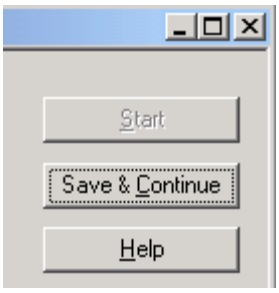
9. When tuning is finished, click “Save & Continue”.



10.If the Rx Am Suppression tuning was completed successfully, click “OK” to stop tuning.

11.Close the Rx Am Suppression window.

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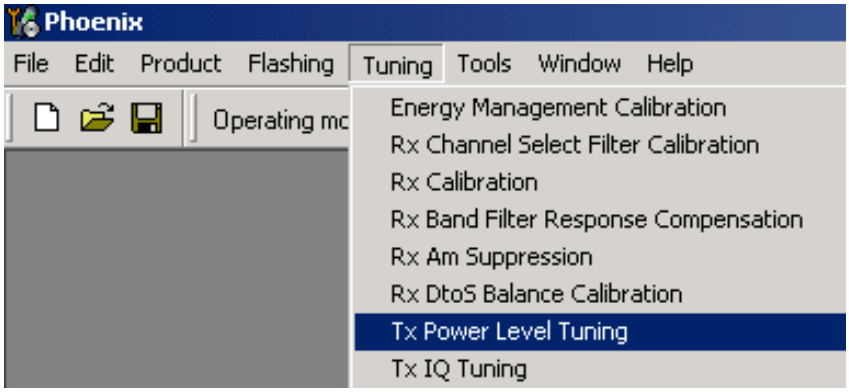
Transmitter manual tuning

Tx Power Level Tuning

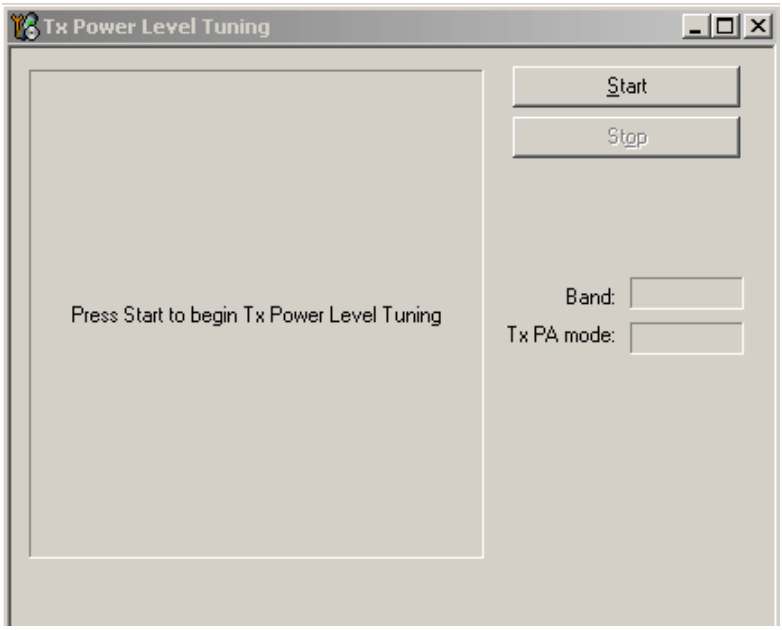
- A power meter or a spectrum analyzer is needed.
- With Tx Power Level Tuning, the coefficients are adjusted for each power level.
- Start power level tuning at GSM850/EDGE, then continue at GSM1800/EDGE band and finally at the GSM1900/EDGE band.
- In the GSM tuning, set data type to "Random".
- In the EDGE tuning, set data type to "All 0's". If you use "Alternate PN9", you need to tune power levels 1dBm lower than the target levels.

To start Tx Power Level Tuning:

1. From the “Tuning” menu, choose “Tx Power Level Tuning”.



2. Click “Start”. Tuning begins at the GSM850 band



3. Set up spectrum analyzer accordingly.

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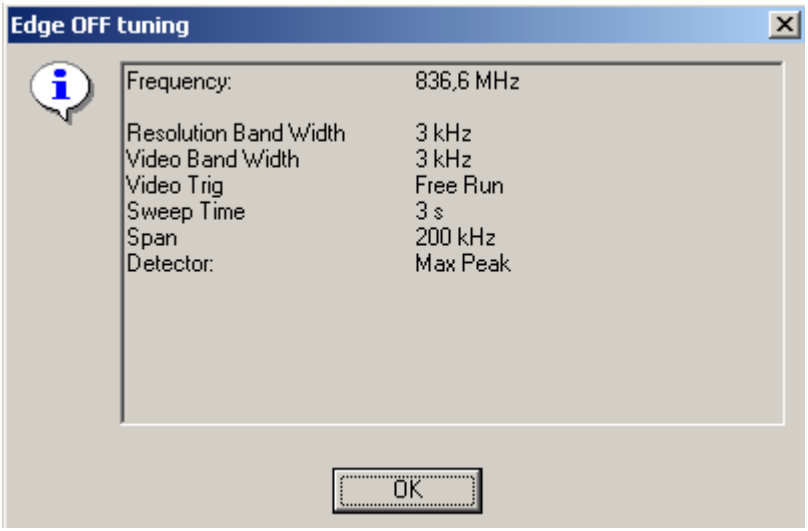
Remember to take the jig and cable attenuations into account!

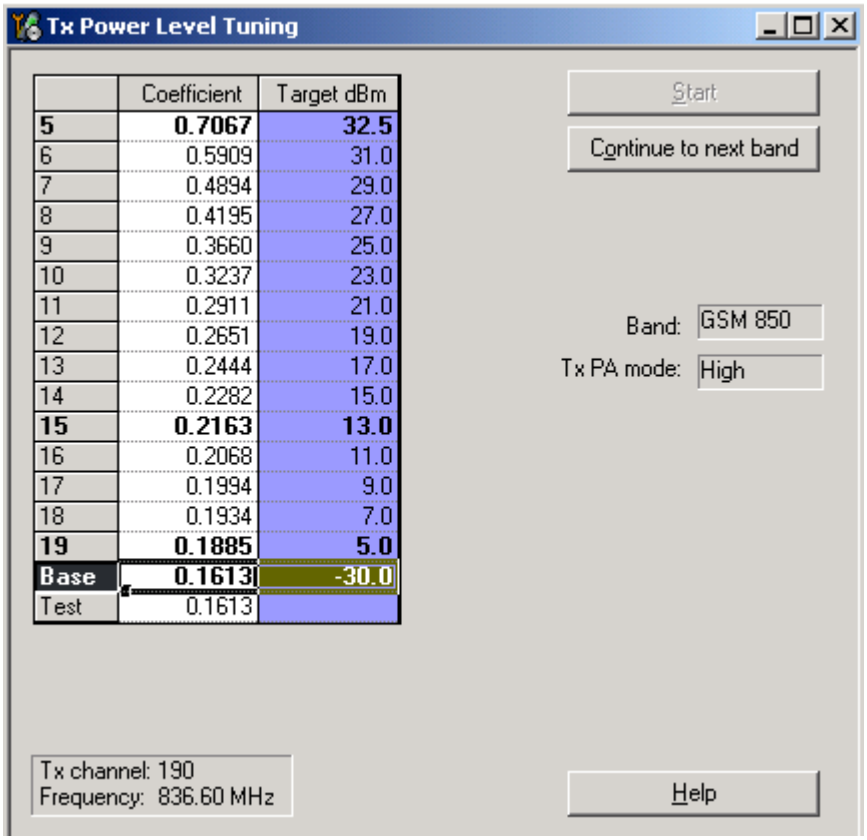


The coefficient table lists the power level, coefficient, and target dBm for each power level.

4. To choose the tuned power level, use up and down arrows or mouse. The current power level is shown with inverse colours.

5. To adjust the tuning value, use "-" and "+" keys.

6. Tune base level and power levels 19, 15 and 5 to target level.



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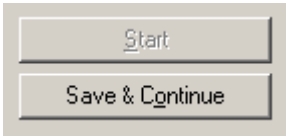
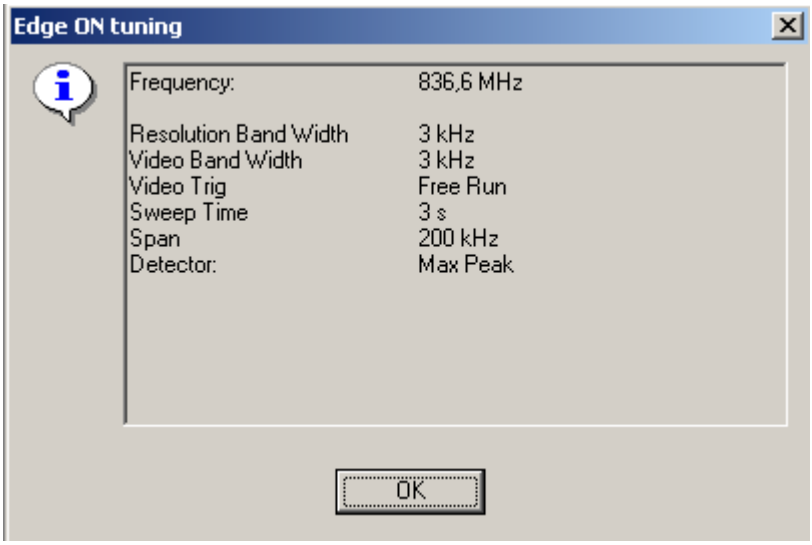
7. Click “Save & Continue”. Tuning values are calculated and saved to phone’s memory.

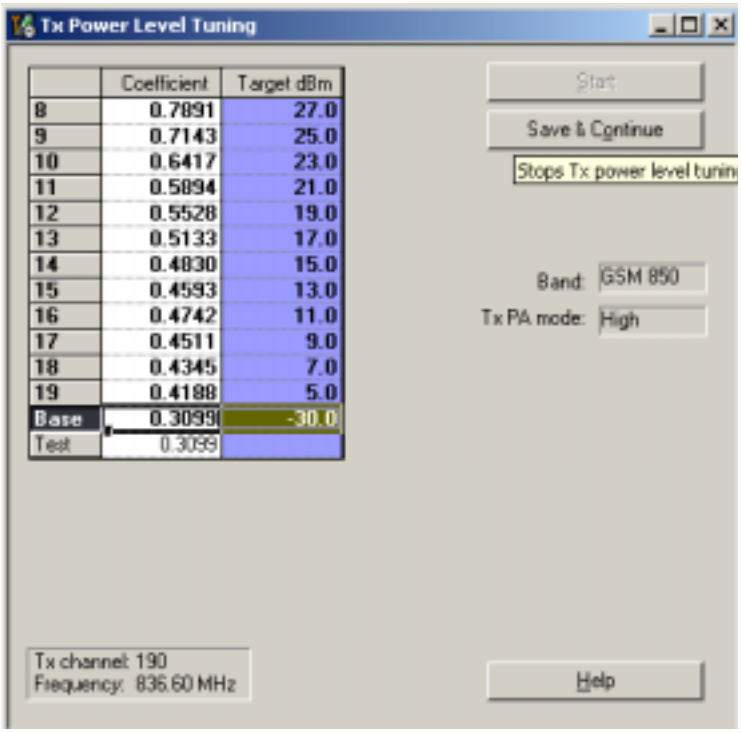


Tuning continues at EDGE850.

8. Set up spectrum analyzer accordingly.



9. To start tuning, click “OK”.



10. Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

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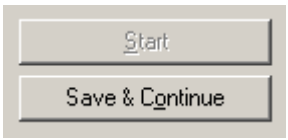
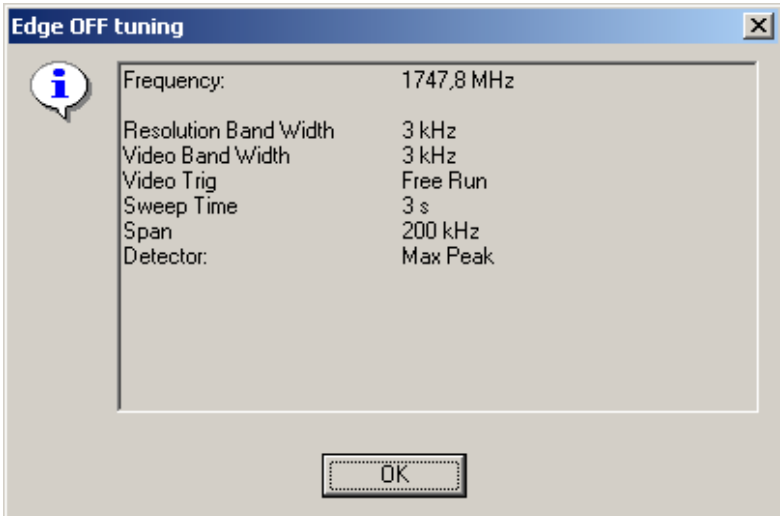
11.To save the tuning values to phone's memory, click "Save & Continue".



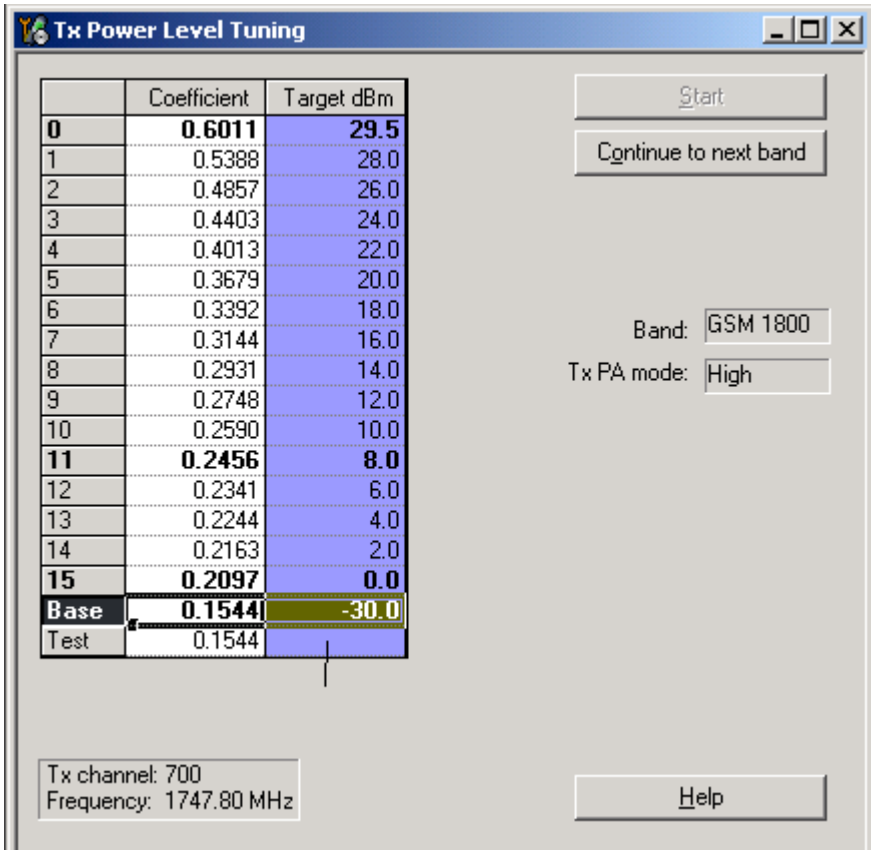
Continue tuning at GSM1800 band

12.Set up spectrum analyzer accordingly.

Remember to take the jig and cable attenuations into account!



13.To start tuning, click "OK".



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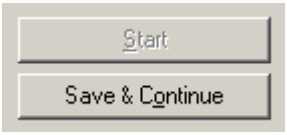
14.Tune base level and power levels 15,11 and 0 to target level.

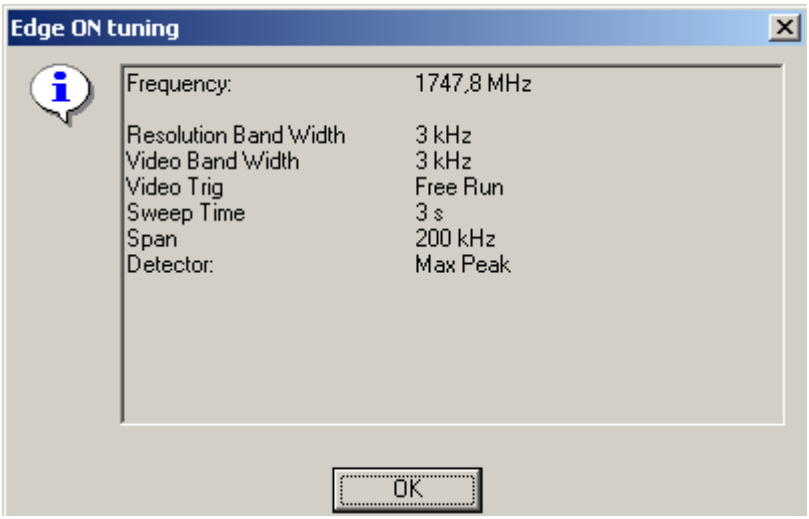
15.TClick “Save & Continue”.

Tuning values are calculated and saved to the phone’s memory.

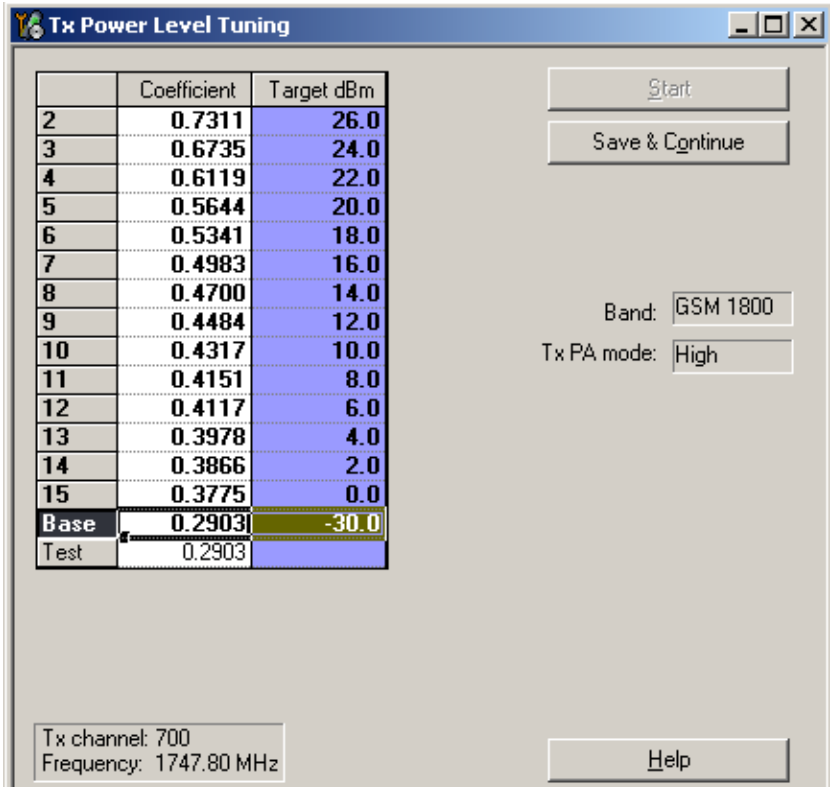


Tuning continues at EDGE1800.

16.Set up spectrum analyzer accordingly.



17.To start tuning, click “OK”.



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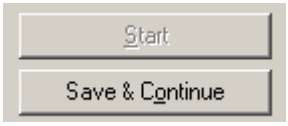
18.Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

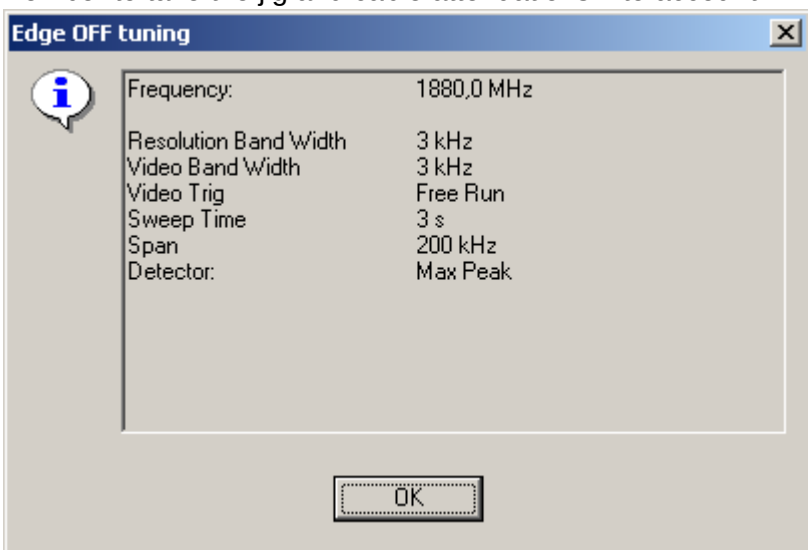
19.To save the tuning values to phone's memory, click "Save & Continue".



Continue tuning at GSM1900 band.

20.Set up spectrum analyzer accordingly.

Remember to take the jig and cable attenuations into account!



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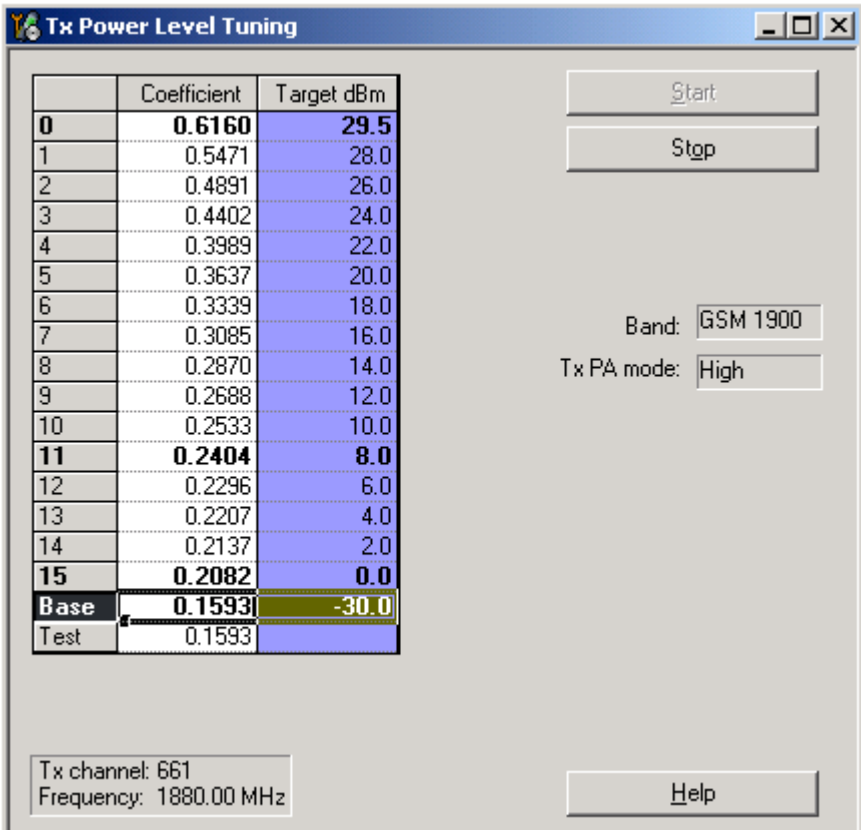
21.To start tuning, click “OK”.

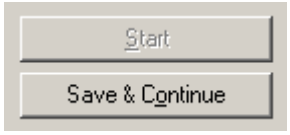


22.Tune base level and power levels 15, 11, 3 and 0 to target level.

Note! Target for power level 0 is 30 dBm at GSM1900 band.

23.Click “Save & Continue”.

Tuning values are calculated and saved to phone’s memory



Tuning continues at EDGE1900.

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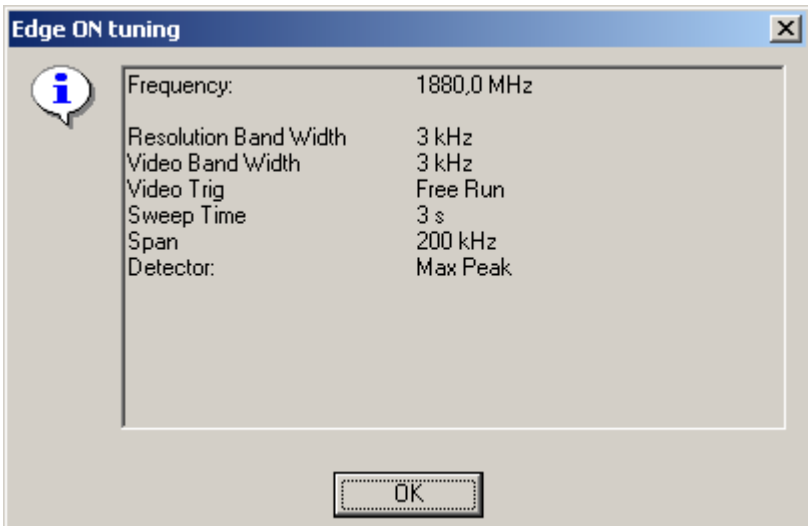
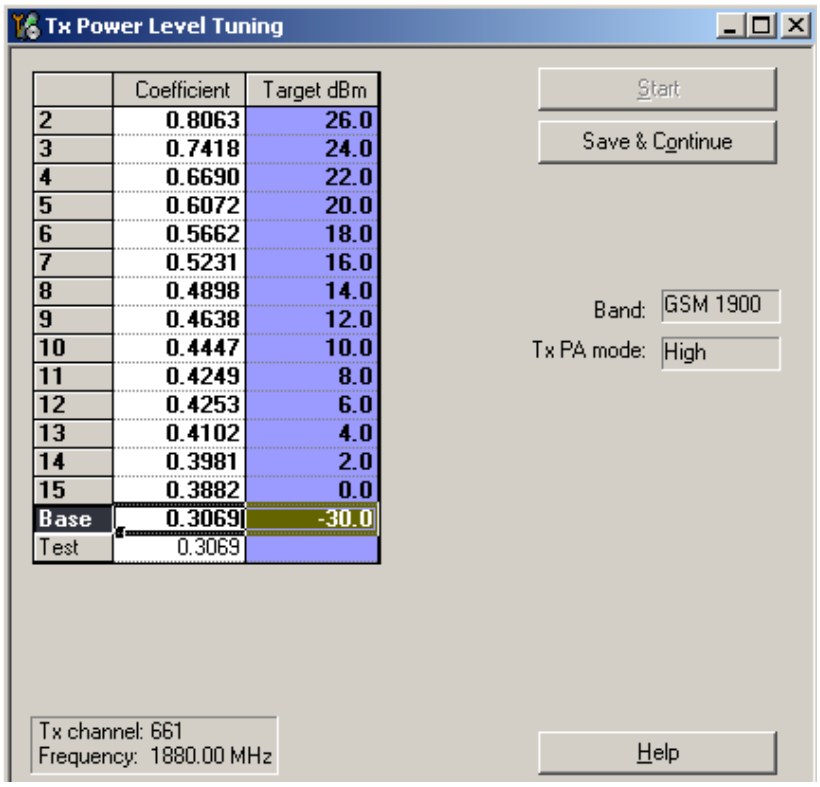
24.Set up spectrum analyzer accordingly.



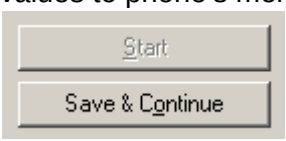
25.To start tuning, click “OK”.



26.Tune all power levels to target level.

Note! Target for EDGE Base level is -15dBm.

27.To save the tuning values to phone’s memory, click “Save & Continue” .



Tx Power Level Tuning is now completed.

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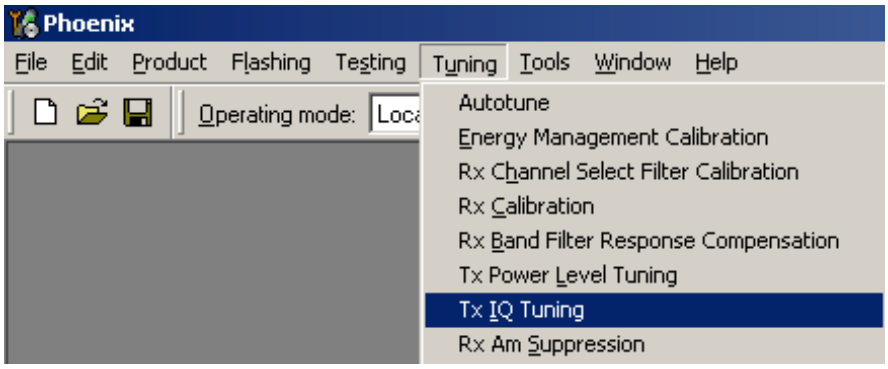
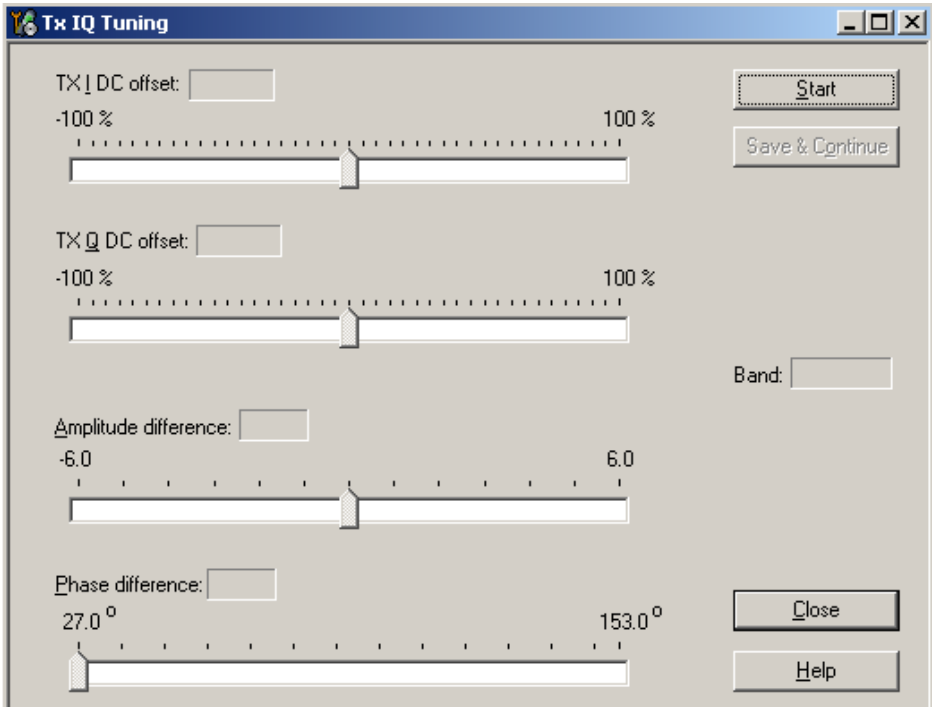
Tx I/Q Tuning

- Spectrum analyzer is needed
- Tx IQ tuning allows changing the Tx I DC offset, Tx Q DC offset, amplitude difference and phase difference.
- Must be done separately on all bands!

1. From the “Tuning” menu, choose “Tx_IQ Tuning”.



Tx IQ Tuning window opens.



2. To begin tuning at the GSM850 band, click “Start”.

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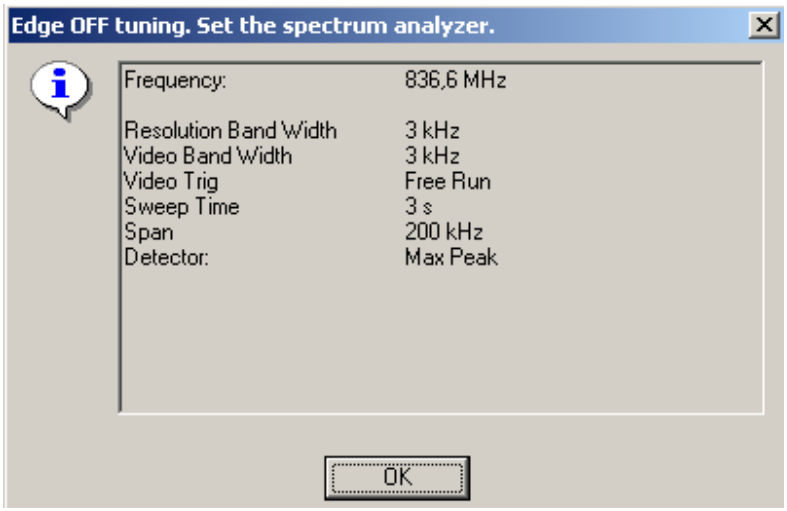
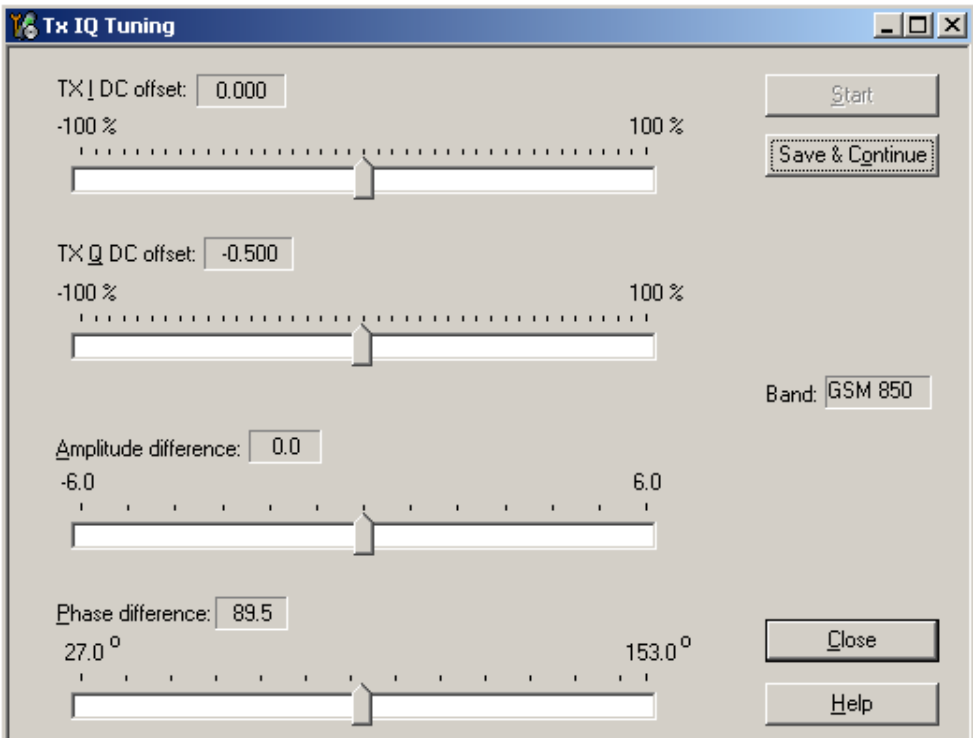
3. Adjust spectrum analyzer accordingly.



4. To start tuning, click “OK”.



5. To tune, set each of the sliders to a desired value.

The order of tuning should be the same as the order of the sliders, that is, the Tx I DC Offset is tuned first and Phase difference is tuned last.

Use <= , =>, PgUp or PgDn keys.

6. Tune LO leakage to minimum with TxI/TxQ DC Offset control (f0 on spectrum analyzer screen).

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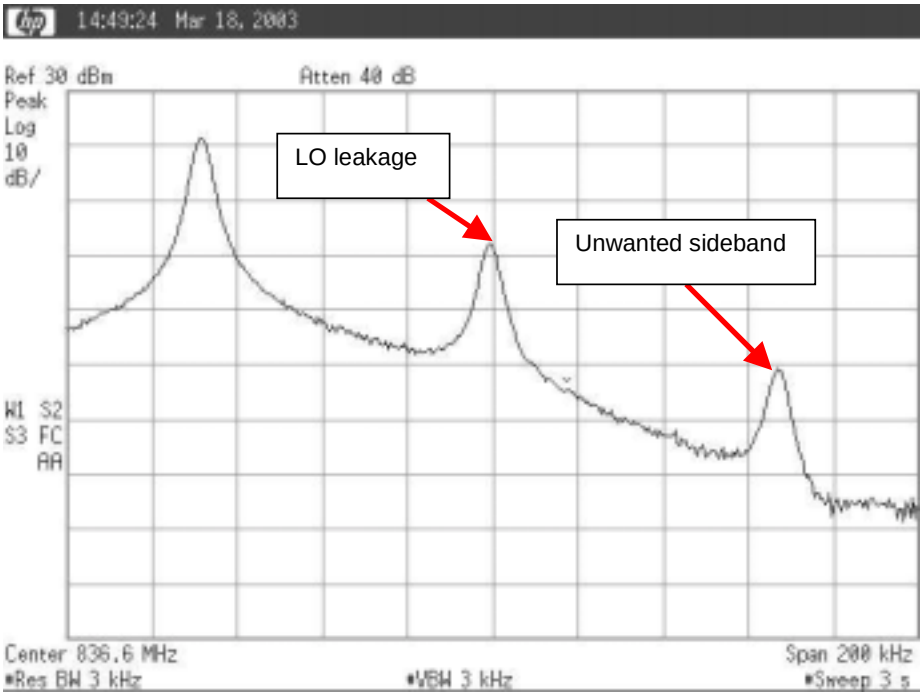
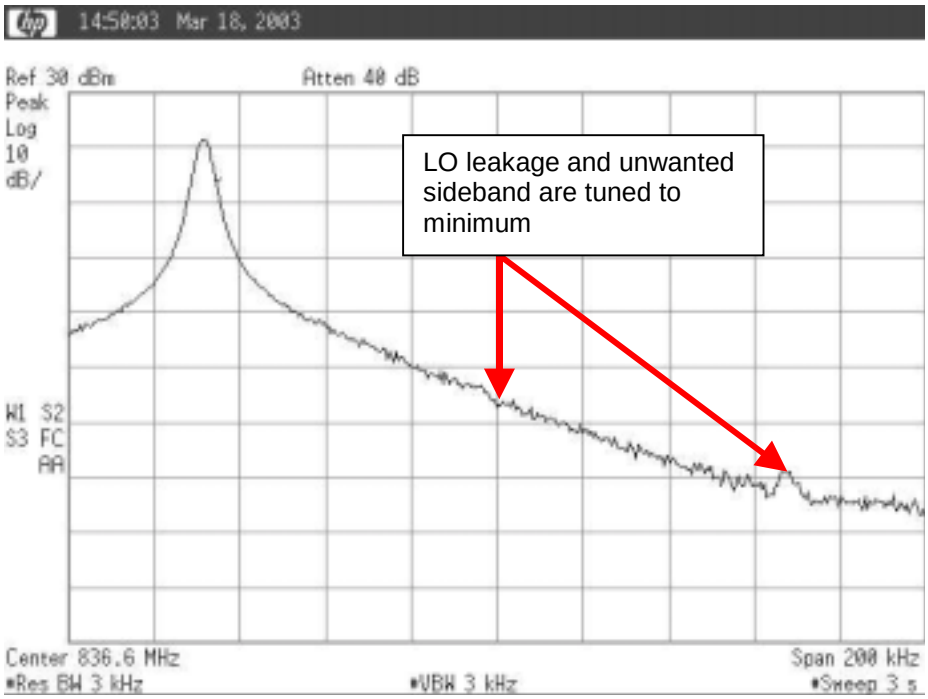
7. Tune undesired sideband to minimum using Amplitude/Phase difference controls (f0 + 67.71kHz on spectrum analyzer screen).





Tuning limits are the same for all bands (GSM/EDGE850, GSM/EDGE1800 and GSM/EDGE1900).

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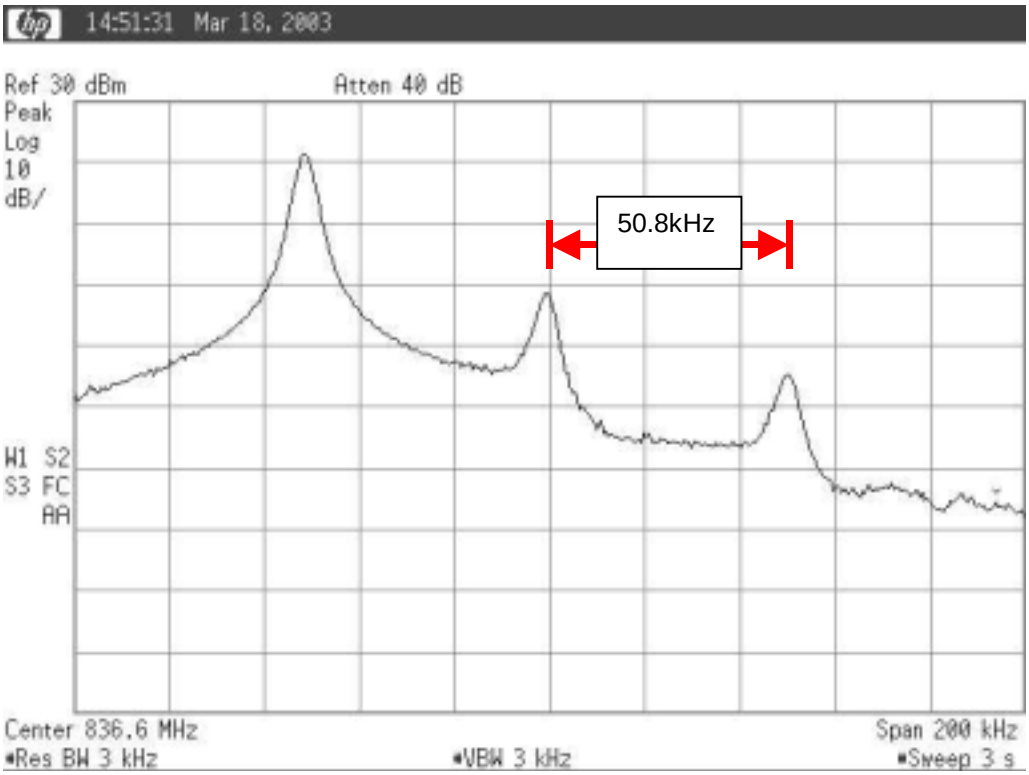
Table 7: Tuning limits for GSM/EDGE850, GSM/EDGE1800 and GSM/EDGE1900

Tuning limits	
I DC Offset	-6…+6
Q DC Offset	-6…+6
Amplitude difference	-1…+1
Phase difference	- 80°…100°

8. When the IQ spectrum is balanced, click “Save & Continue” to continue EDGE850 Tx IQ tuning.

Spectrum analyzer settings are the same as for GSM850 IQ tuning.

NOTE! In EDGE-mode, the unwanted sideband is located at 50.8kHz from f0.



9. When the IQ spectrum is balanced, click “Save & Continue”.

Continue tuning at GSM/EDGE1800 band.

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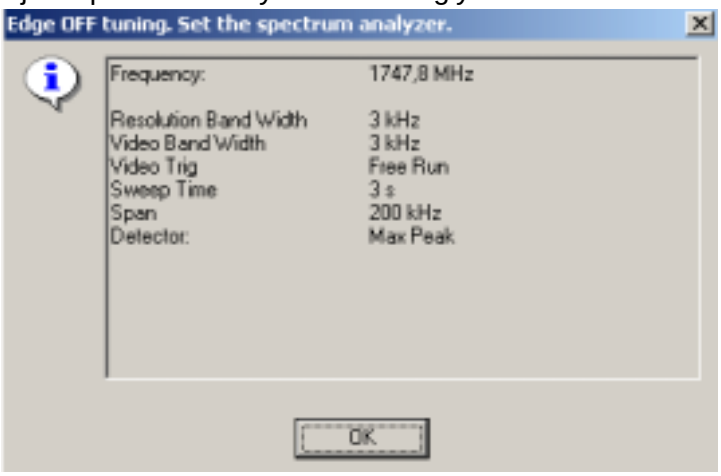
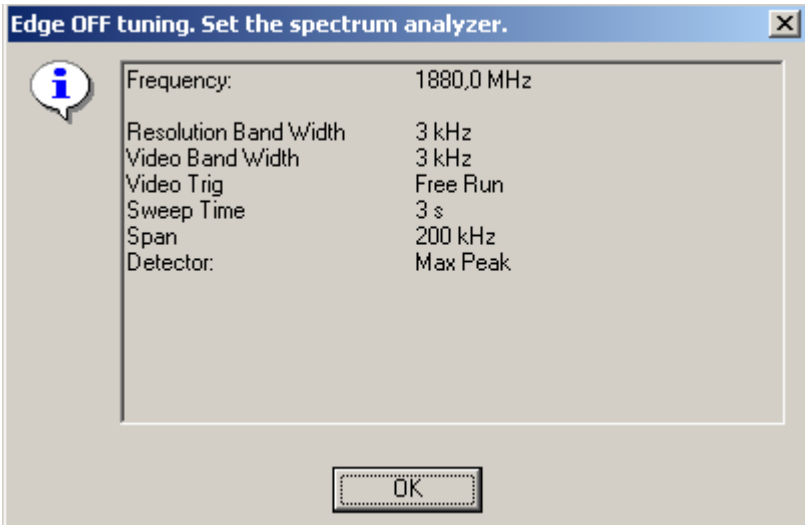
10.Adjust spectrum analyzer accordingly.



Both GSM and EDGE 1800 use the same settings.

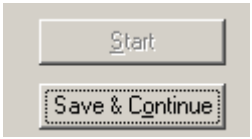
Continue tuning at GSM/EDGE1900 band

11.Adjust spectrum analyzer accordingly.



Both GSM and EDGE1900 use the same settings.

12.When GSM and EDGE1900 are tuned, click “Save & Continue”.



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13.To complete the Tx IQ Tuning, click “OK”.

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8. Service Tool Concept for Baseband Tuning Operations

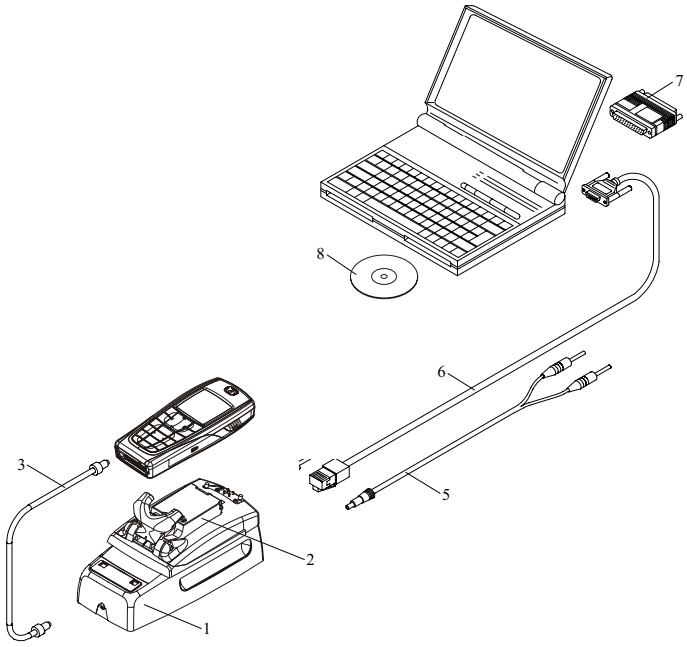
EM calibrations should be carried out in JBV-1 docking station equipped with DA-9 docking station adapter.

Power to JBV-1 should be supplied from an external DC power supply, not from the FPS-8 prommer.

JBV-1 input voltages:

- Maximum +16 VDC
- Nominal input for RF tunings is +12 V DC

Figure 8:Service concept for NHL-12 baseband tunings



Item	Accessory type	Service accessory	Product code
1	JBV-1	Docking station	0770298
2	DA-9	Docking station adapter	0770663
3	SCB-3	DC-DC cable	0730114
5	PCS-1	DC power cable	0730012
6	DAU-9S	Service FBUS cable	0730108
7	PKD-1	Software protection key	0750018

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Item	Accessory type	Service accessory	Product code
8	Service SW	CD-ROM	

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9. Baseband Tuning Operations

Energy management calibration

Energy management (EM) calibration is used for calibrating the battery and charger settings of the phone.

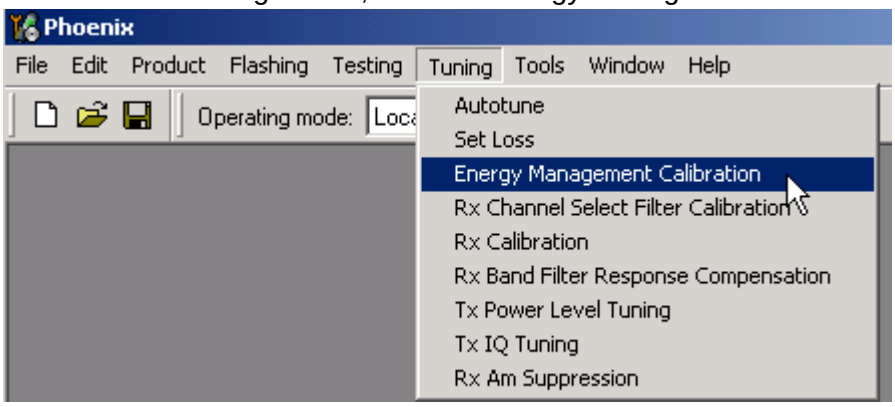
Preparation for EM calibration:

- External power supply is needed.
- Connect the DC cable SCB-3 between JBV-1 and Vin of the phone for charger calibration
- Connect 12…15 V from the power supply to JBV-1

NOTE! Check that the connection is F-BUS (does not work with M-BUS).

To start energy management calibration:

1. From the “Tuning” menu, choose “Energy Management Calibration”.



Energy management values to be calibrated are checked.

2. To show the current values in the phone memory and to check that the communication with the phone works, click “Read from Phone”.

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3. To run the selected calibrations, click “Calibrate”.

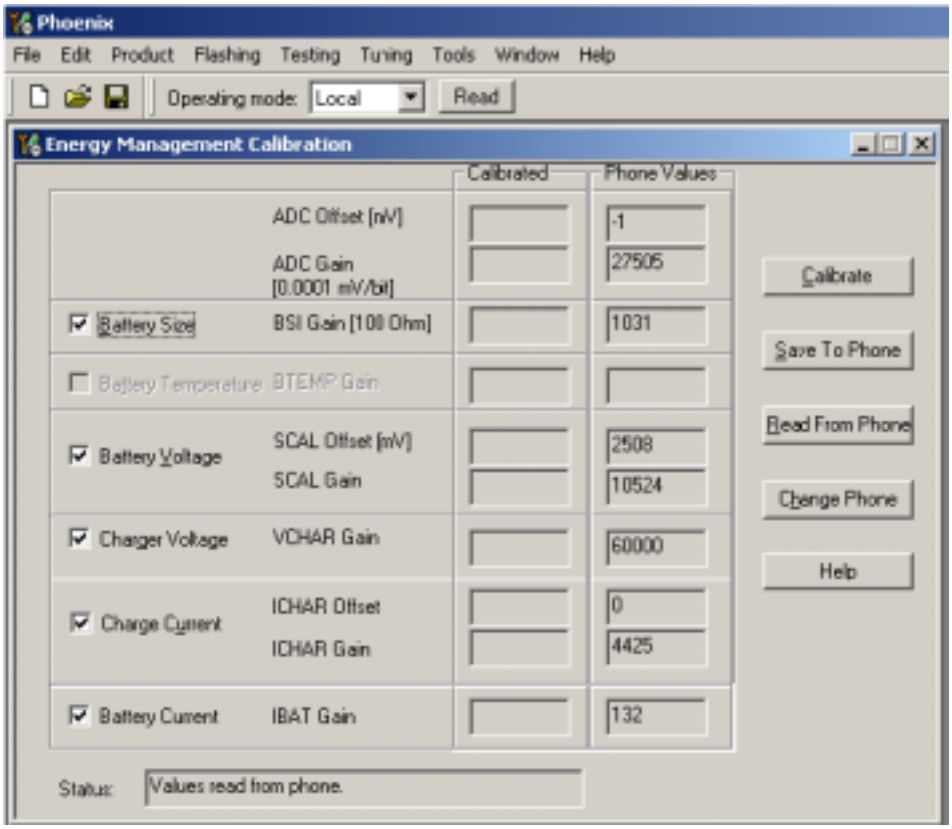

Table 8: Limits for energy management calibration

Channel	Low	High	Channel
ADC Offset	-50	50	ADC Offset
ADC Gain	25400	29500	ADC Gain
BSI Gain	970	1100	BSI Gain
Vbatt Offset	2300	2900	Vbatt Offset
Vbatt Gain	10000	11000	Vbatt Gain
Vchar	58000	63000	Vchar
Ichar	4050	4800	Ichar
Ibat	80	150	Ibat

4. If values shown are within limits, click “Save To Phone” to save the values in the phone.

NOTE! Only the values of the checked tunings (Battery size, Battery Temperature etc.…) are saved.

5. To end tuning, close the “Energy Management Calibration” dialog box.

6. After exiting the dialog box, you must manually switch the phone on.

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10. Phoenix Self Tests

Test	Description
ST_AUX_DA_LOOP_TEST	The test checks connection of AuxDa and UemInt signals between UPP and UEM.
ST_EAR_DATA_LOOP_TEST	The test checks connection of EarData and MicData signals between UPP and UEM.
ST_IR_LOOP_TEST	The purpose of this test is to check that IR device works properly.
ST_KEYBOARD_STUCK_TEST	The purpose of this test is to check that the keyboard is not stuck, meaning that none of the keyboard keys other than the power-key is pressed.
ST_MBUS_RX_TX_LOOP_TEST	The test checks connection of MBusTx and MBusRx signals between UPP and UEM.
ST_SIM_CLK_LOOP_TEST	The test checks connection of SimClk and SimIODa signals between UPP and UEM.
ST_SIM_IO_CTRL_LOOP_TEST	The test checks connection of SimIOCtrl and SimIODa signals between UPP and UEM.
ST_SLEEP_X_LOOP_TEST	The test checks connection of SleepX and SleepClk signals between UPP and UEM.
ST_TX_IDP_LOOP_TEST	The test checks connection of TxIdp and RxIdp signals between UPP and UEM.
ST_TX_IQ_DP_LOOP_TEST	The test checks connection of TxQdp and RxQdp signals between UPP and UEM.
ST_BACKUP_BATT_TEST	The test checks whether the connection to the backup battery is OK or not.
ST_LPRF_IF_TEST	The purpose of this test is to test the Bluetooth interface, i.e. the BT module
ST_CAMERA_IF_TEST	The purpose of this test is to check the camera interface.
ST_WARRANTY_TEST	The purpose of this test is to test the warranty information state.
ST_FLASH_CHECKSUM_TEST	The test is done calculating the checksum over flash ROM areas and checksum is compared to a pre-calculated checksum in flash header. Note, this test checks only the CMT side flash, not the APE side flash.
ST_LPRF_AUDIO_LINES_TEST	This test is used in Bluetooth PCM loopback test.
ST_UEM_CBUS_IF_TEST	The test checks CBUS connection between UPP and UEM.

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Test	Description
ST_VIBRA_TEST	The purpose of this test is to check that the vibra chip is functional.
ST_SLEEPCLK_FREQ_TEST	This function tests the frequency of 32kHz SleepClock (CRYSTAL).
ST_CURRENT_GAUGE_IF_TEST	Zocus current gauge chip is controlled via CBUS. The test checks whether the connection to the chip is OK or not.
ST_MAIN_LCD_IF_TEST	The purpose of this test is to check all connections between APE and the main LCD.
ST_APE_DAC_CTRL_IF_TEST	Purpose of this test is to check connections (I2C lines) between APE and DAC
ST_APE_RAM_TEST	The test performs a complete test for APE SDRAM from address zero to end.
ST_APE_POST_CODE_TEST	The test checks the latest XBUS postcode sent by APE .
ST_BT_WAKEUP_TEST	This test is used in BT wakeup signal test
ST_XABUS_TEST	The purpose of this test is to check the communication link (XABUS) between application-DSP and CDSP.

NOTE! If *ST_APE_RAM_TEST or ST_CMT_APE_WAKE_UP_TEST is executed from the Self Tests window (by running tests one by one or if Select All is clicked), the phone has to be re-started to get reliable results from other tests.*

If ST_BT_WAKEUP_TEST is executed, the phone has to re-started before opening the Bluetooth LOCALS window for Bluetooth testing.

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11. Flashing Setup Instructions

This section describes the different flashing setups for NHL-12.

In general, after you have connected all the cables and started Phoenix, wait until you see the Ready status in the status bar before using the Phoenix testing features.

If there is no NOS (Network Operating System) ready, then the application side is not started up correctly and some Phoenix features which need the application side are not working (user data back-up, user area formatting, audio control, Bluetooth LOCALS, camera control, display test, factory settings, keyboard test, MMC control, self tests, USB tests).

POS (Point of Sale) flash concept

Figure 9:POS flash setup

Item	Type	Description	Code
1	SF-8	Point Of Sale flash loading adapter	0770665
2	CA-28DS	Service data cable	0730319
3	ACF-8	AC Charger	0680032
4	FLS-4S,	FLS-4S sales package US	0080543
5	n.a.	USB cable	n.a.
6	PKD-1	Software protection key	0750018
7		Service SW CD-ROM	

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JBV-1 flash concept

When performing NHL-12 flashing on a PC for the first time, the flashing may fail because of USB driver installations which are done before the flashing procedure. If the flashing fails, re-start flashing.

The user who is logged into Windows has to have admin rights on the PC used.

Figure 10:Flash concept with FPS-8

Note! Before connecting DA-9 to the phone, adjust the gray sliding catch to middle position, so that the SIM contacts and test points are visible:

Refer to table overleaf for details.

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Item	Type	Description	Code
1	DA-9	Docking station adapter	0770663
2	JBV-1	Docking station	0770298
3	XCS-4	Modular cable	0730178
4	FPS-8	Flash prommer box	0080321
5	SCB-3	Service cable	0730283
6	AXS-4	RS-232 (D9-D9) cable, incl. in FPS-8 sales package	0730090
7	PKD-1	Software protection key	0750018
8		Service SW CD-ROM	
9	ACF-8	AC charger, incl. in FPS-8 sales package	0680032
10	n.a.	USB cable	n.a.
11	FLC-2	Power cable	0730185
12	AXP-8	Printer cable	0730298

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Module jig concept

When connecting the NHL-12 phone to a PC via USB for the first time (either by inserting the cable to an adapter which is connected to the PC or directly with a DKU-2 cable), the driver installation for the USB connection is started. After the driver is installed, different NHL-12 phones can be connected to the PC without driver installation.

The user who is logged into Windows has to have admin rights on the PC used.

Figure 11:Module jig concept

Item	Type	Description	Code
1	MJ-13	Module jig	0770666
2	FLC-2	DC power cable	0730185
3	ACF-8	Charger	0680032
4	n.a.	USB cable	n.a.
5	XCS-4	Service cable	0730178
6	AXS-4	D9-D9 cable	0730090
7	AXP-8	Printer cable	0730298
8	PKD-1	Software protection key	0750018
9		Service SW CD-ROM	

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Service concept for calibrations

Figure 12:Service concept

Item	Service accessory	Type	Product code
1	Docking station	JBV-1	0770298
2	Docking station adapter	DA-9	0770663
3	RF adapter	SA-5	0770665
4	RF antenna cable	XRF-1	0730085
5	RF cable	XRS-11	0730265
6	Service cable	SCB-3	0730114
7	Charger	ACF-8	0680032
8	Service FBUS cable	DAU-9S	0730108
9	Service cable	XCS-4	0730178
10	Power cable	FLC-2	0730185

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Item	Service accessory	Type	Product code
11	Software protection key	PKD-1	0750018
12	Service SW CD-ROM		

Connecting SA-5 and XRS-11

1. Remove camera ornament with two SRT-6s.

2. Carefully place SA-5 on the tranceiver.

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3. Turn SA-5 into right position. The RF connector should now be fully visible.

4. Connect the XRS-11 probe to the phone's RF connector.

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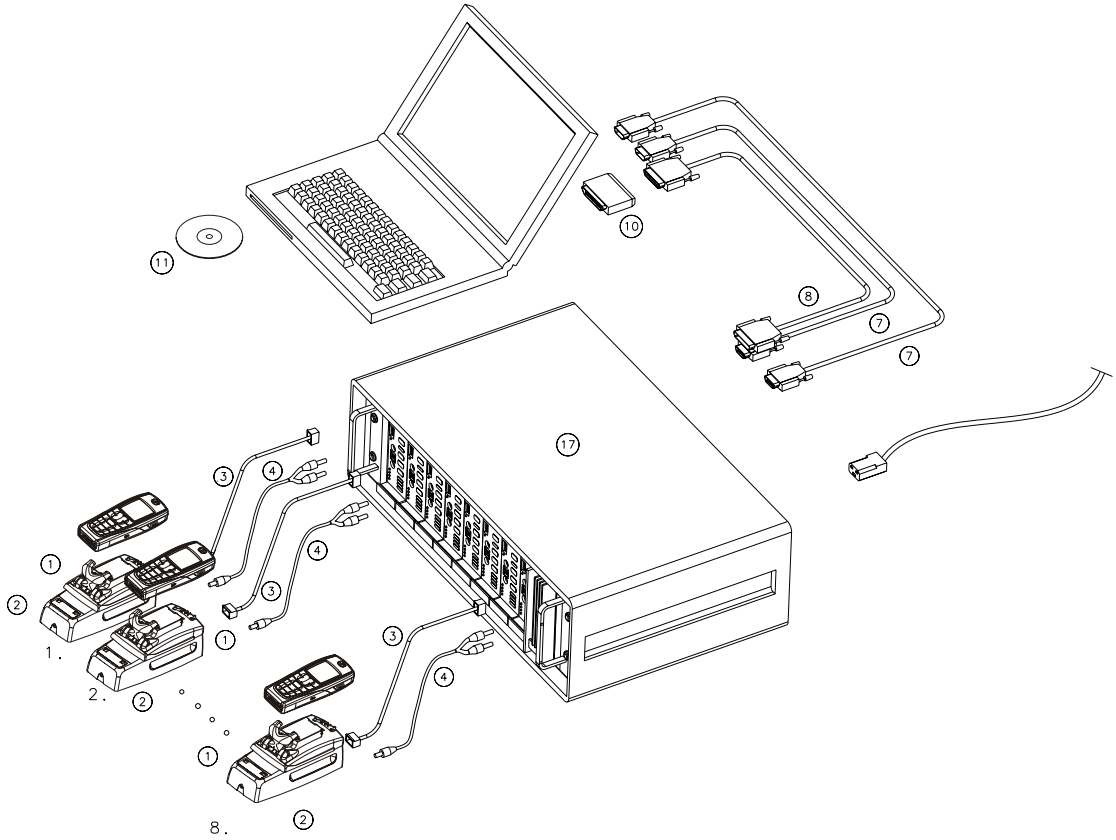
Parallel flash concept

Figure 13:Parallel flash concept



Item	Type	Description	Code
1	DA-9	Docking station adapter	0770663
2	JBV-1	Docking station	0770298
3	XCS-4	Modular cable	0730178
4	PCS-1	DC power cable	0730012
7	AXS-4	D9 – D9 cable, incl. in FPS-8C sales pack	0730090
8	Printer cable	Incl. in FPS-8C sales pack	0730029
10	PKD-1	Software protection key	0750018
11		Software (PC SW + SF11C SW)	
17	FPS-8C	Heavy flash prommer	0080396

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Bluetooth testing with JBT-9

Item	Accessory type	Service Accessory	Product code
	JBT-9	Test & IF-box for Bluetooth	0770336
	ACP-8	Charger	
	SF-8	Flash adapter	0770665
	DAU-9S	Service FBUS cable	0730108
	PKD-1	Software protection key	0750018
	Service SW	CD-ROM	

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Flash fail situations

0xC602

Figure 14: 0xC602 error message

0xC602 indicates an APE connection problem.

Possible reason is that the adl_loader (**OMAP1510_SAMSUNGSEIJA_4.adl**) file is not found from the directory **\Phoenix\Flash**.

Bootcode 14 is compatible with **OMAP1510_SAMSUNGSEIJA_4.adl**.

Check the USB connection and make sure that all the pins are up in the flash adapter.

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0xC686

Figure 15: 0xC686 error message

Flash
Flashing failed.
Error occured during the flashing procedure.
Low level error description:
C686: Phone fail response received (flashing)
The programming status response from the Phone informs about fail.
The Prommer copies the Phone response contents to the related FIASCO_GENERAL_INFO_IND message
Tips:
OK

0xC686 indicates an APE connection problem.

Make sure that you have at least Power User rights to the PC used.

Remove the phone from the flash adapter and re-flash.

If this does not help, remove the phone from the flash adapter and create short-circuit between the battery connector + and – pins.

If the flashing fails again, close Phoenix and reset the FPS-8 prommer.

Make sure that all the pins are up in the flash adapter.

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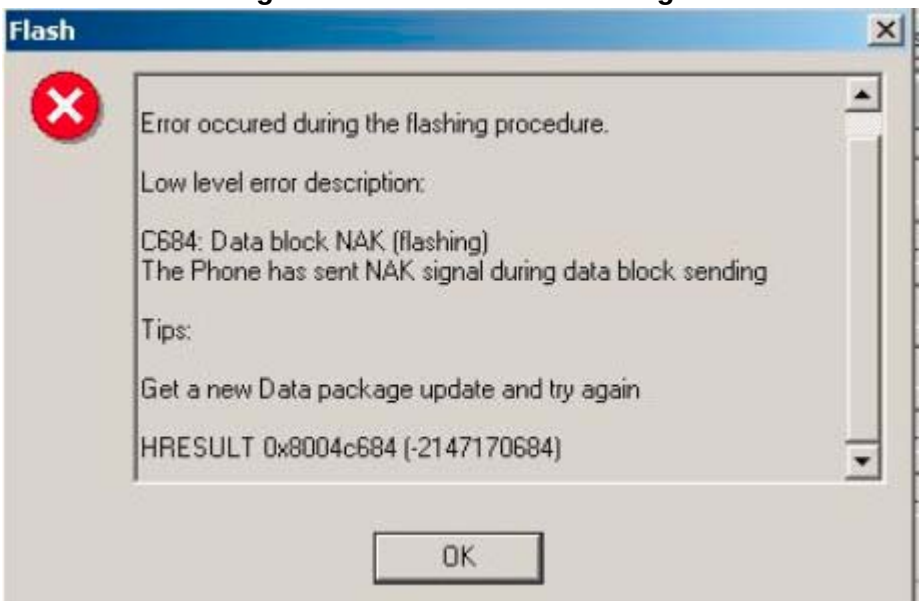
0xC684

Figure 16: 0xC684 error message


Flash
Error occured during the flashing procedure.
Low level error description:
C684: Data block NAK (flashing)
The Phone has sent NAK signal during data block sending
Tips:
Get a new Data package update and try again
HRESULT 0x8004c684 (-2147170684)
OK

0xC684 indicates an APE connection problem.

Remove the phone from the flash adapter and re-flash.

Make sure that all the pins are up in the flash adapter.

0xC101 or 0xC102 or 0xC103

Figure 17: 0xC103 message

Flash
Flashing failed.
Error occured during the flashing procedure.
Low level error description:
C103: Boot serial line fail
The phone MCU hasn't received the first dummy word correctly
from the prommer after the phone VCC is switched on
Tips:
Check or change data cable/adapter and
OK

Error messages **0x101, 0x102, 0x103** indicate a connection problem in the CMT side.

Remove the phone from the flash adapter and re-flash.

Replace the XCS-4 service cable with a normal ethernet cable.

Make sure that all the pins are up in flash adapter.

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12. Reprogramming NHL-12

Connecting cables

Once you have the NHL-12 opened and the battery and SIM removed, attach it to the DA-9 adapter. When connected, the phone goes to local mode and the screen will not show anything during the SW update.

Proceed as follows:

1. Connect XCS-4 cable from FPS-8 to JBV-1.
2. Connect PCS-1 cable from FPS-8 to JBV-1.
3. Connect USB cable from PC to DA-9.
4. Press the phone power key.

Phone starts in normal mode.

Backing up settings

When backing up settings, a quick way is to use the MMC user data backup, which can be found at: **Menu -> Extras -> Memory -> Options -> Backup phone memory**.

If you flash the phone with Restore User Phone selected, then the same that is done with the All Settings component is done automatically during flashing.

To back up settings:

1. Start Phoenix SW: double-click the **Phoenix icon** on your desktop.
2. Choose File -> Manage Connections.
3. Click USB.

If USB connection is not yet created, see chapter Managing Connections.

4. Click Apply, and then close the dialog.
5. Choose File -> Scan Product.

If the phone is OK, you should see the SW version in the lower right-hand corner, of the screen, for example V1.31.0.

If the scan does not find anything, the phone is not functioning normally.

6. Click Product.
7. Click User Settings.
8. Click All Settings.

Please wait.

9. Click Browse.
10. From the *C:\Program files\Nokia\Phoenix\Products\NHL-12\ directory*, choose NHL_12.ini.

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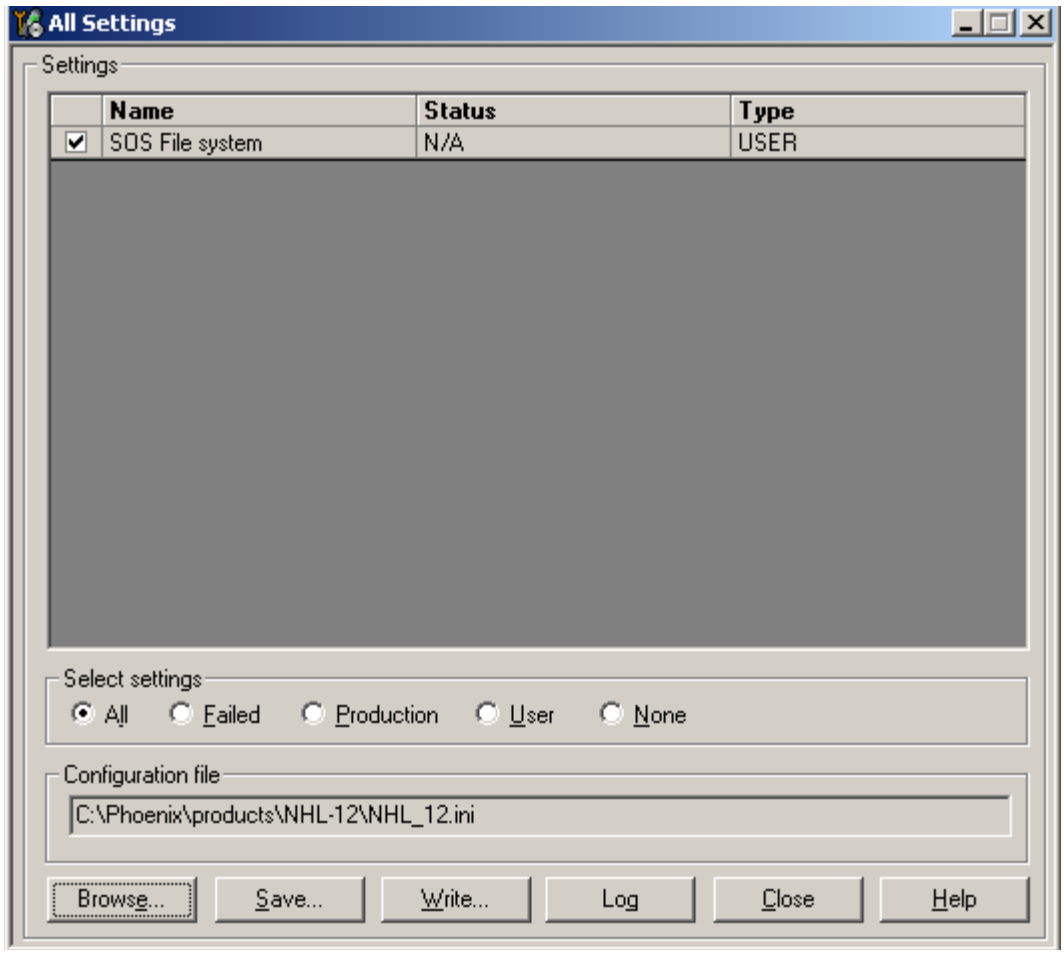
You see the following window:

Figure 1:All Settings window



11.Click Save.

Updating software

To update the phone software:

1. From the Flashing menu, choose FPS-8 Flash.
2. Select Restore User Phone or Phone as Manufactured.

   If you select Restore User Phone, then select Options -> Check Use USB for user settings -> click OK.

3. If the flash files are not automatically selected, select the correct product code from the Code drop down list.
4. Click Start.

You are notified, when the software update ends.

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Formatting user area

The user area also needs to be formatted in order to make sure that there is no user data left in the phone.

To start formatting:

1. Choose File -> Scan Product.

   At the bottom of the Phoenix window you should see V3.1, Date, NHL-12(c) NMP.

2. Click Product -> File System Format.

   You get a note warning about the loss of user data.

3. To proceed, click Yes.

Phoenix shows a success message.

Restoring settings

Restoring settings from the MMC card

1. Select Menu -> Extras -> Memory -> Options -> Restore from Card.

Restoring settings with Phoenix

1. Start Phoenix SW: double-click the Phoenix icon on your desktop.
2. Choose File -> Manage Connections.
3. Click USB.
4. Click Apply, and then close the dialog.
5. Choose File ->Scan Product.

   If the phone is OK, you should see the SW version in the lower right-hand corner of the screen, for example V1.31.0.

   If the scan does not find anything, the phone is not functioning normally.

6. Click Product.
7. Click User Settings.
8. Click All Settings.

   Please wait.

9. Click Browse.
10. From the *C:\Program files\Nokia\Phoenix\Products\NHL-12\ directory*, choose NHL_12.ini.

    You now see the All Settings window. See Figure 1, “All Settings window,” on page 90.

11. Click Write.

    The File Prompt dialog opens.

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12.Select the correct file (the one which was saved in the settings back-up phase).

13.Click Open.

The restoring process starts.

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